

WELLESLEY COLLEGE

THE  20th
RUHLMAN
RUHLMAN
RUHLMAN
CONFERENCE

A CELEBRATION OF
STUDENT ACHIEVEMENT

APRIL 27, 2016





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Biography of Barbara Peterson Ruhlman '54



Barbara Ann Peterson was born to Thomas and Ethel Peterson in 1932 in Worcester, Mass., and lived there for her first nine years. The family moved to Shaker Heights, Ohio, where Barbara graduated from Laurel School before enrolling at Wellesley in the class of 1954. A psychology major, Barbara lived in Homestead and Severance before spending her junior and senior years in Clafin Hall.

Of her time at Wellesley, Barbara wrote in 2004, “Fifty-four years ago when I entered Wellesley, it was a dream come true. ... Four years at Wellesley were wonderful, rewarding, but not without their ups and downs, and much hard work, which helped me become a stronger, more confident person.”

Barbara deployed her psychology degree as a hospital social worker before marrying former Air Force Lieutenant Jon Ruhlman in 1955. Jon was a graduate of Purdue University with a graduate degree from the University of Colorado. Together, Jon and Barbara raised two sons, Robert and Randall, while Jon pursued a career in business. Barbara took on numerous volunteer leadership roles in the arts, education, health care, and more in her community. Barbara and Jon avidly pursued their loves of sailing, global travel, and spending time with their two grandchildren together. Sadly, Jon passed away in 2004.

To this day, Barbara has remained closely connected to Wellesley College through her philanthropy, her volunteer service, and her participation in class Reunions and mini-reunions, of which she has written, “I have enjoyed reconnecting with classmates I knew years ago and meeting some for the first time. ... I treasure my new friends, and those I have had for many years, as they provide a great source of strength and stability.”

THE RUHLMAN CONFERENCE 2016

It gives us great pleasure to welcome you to the 2016 Ruhlman Conference. Made possible by the Barbara Peterson Ruhlman Fund for Interdisciplinary Study, the Ruhlman Conference is intended to foster collaboration among students and faculty across the disciplines and to enhance the intellectual life of the College. The event provides an opportunity for students, faculty, staff, friends, family, and alumnae to come together in celebration of student achievement.

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

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

We invite you to celebrate the 20th annual Ruhlman Conference by experiencing the scope and richness of student achievement at this year's conference. In addition, we invite you to the Alumnae Ballroom throughout the day to dynamically explore the history and vision of the Ruhlman Conference using the interactive, multi-touch Ruhlman Explore computer application that celebrates Ruhlman presenters from across the years. We wish to express our thanks and congratulations to all students and alumnae, near and far, for their participation in this special event.

The 2015–16 Program Committee for the Ruhlman Conference

Tracey Cameron
Office of Intercultural Education

Jenny Chen
Class of 2016

Rebecca Garcia
Office of the Class Deans

Scott Gunther
French Department

Anjeana Hans
German Department

Jenny Johnson
Music Department

Rachel Kwon
Class of 2017

Jordan Mayfield
Class of 2018

Megan Nuñez
Chemistry Department

Lynne Payson
Special Events

Christina Pong
Communications & Public Affairs

Jennie Pyers
Psychology Department

Erin Richardson
Technology Support Services

Elizabeth Robichaud
*Madeleine Korbel Albright
Institute for Global Affairs*

Elizabeth Scholl
Office for Resources

Orit Shaer
Computer Science Department

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

Sheila Zarba-Campbell
Office for Resources

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 arrived, however, a new question came to occupy their minds: What if no one attended? The conference had been organized into concurrent sessions scheduled from 3 PM 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 participants and attendees of 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, and 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 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 worked than about what they were 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.

As we celebrate the 20th annual conference, it is hard to imagine Wellesley without the Ruhlman Conference. It is built into our calendar and our consciousness. Students look forward to their presentations as they plan their research projects. Faculty mark the years by remembering which students participated in a Ruhlman panel or poster session. Deans describe the conference to candidates for faculty positions as one of the great selling points of the institution. Other colleges planning student research conferences look enviously at the structure we have built. Part of the joy of the day is the way in which traditional divisions are broken down. Science talks happen in Pendleton, poetry readings in the Science Center. Panels are created that cross disciplines and make new connections; their 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

The Ruhlman Explore Design Team

Lauren Westendorf '15, Computer Science and Asiya Yakhina '16, Media Art and Science

ADVISOR: Orit Shaer, Computer Science

Located in Diana Chapman Walsh Alumnae Hall Ballroom during the Ruhlman Conference:

Ruhlman Explore is an innovative computer application designed for discovering the history and ideas of the Ruhlman Conference. The application is built using cutting-edge multi-touch technology and is installed on a large-scale tabletop display. The application enables a large number of people to come together and interact with the application collaboratively—exploring the Ruhlman Conference vision and discovering the ideas discussed at previous conferences from a new perspective.

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:

Lucia Tu '19, Margaret Zarlengo '18, Ariana Carter '18, Helen Cumberbatch '16, Isabelle Schoppa '17, Nina Broocks '16

Concert schedule:

- 9:10–9:30 am: *Lucia Tu '19*
“Waltz,” Brahms
Prelude Op. 28 #15, Chopin, “Raindrop, Chopin”
“Layers,” D’hollander
“Let’s Play Thirds,” D’hollander
“Flute Solo,” Arne
- 10:40–11:00 am: *Margaret Zarlengo '18*
Suite II for Lute, Reusner (“Allemande, Couranda, Sarabanda, Giga , Reusner”)
“Soliloquy,” Sor
“Sarabande for 26 Bells,” Courter
“Tambourin,” Rameau arr. Warner
“Morning” from Peer Gynt, Grieg arr. Price
- 12:10–12:30 pm: *Ariana Carter '18*
“Spring Morning,” D’hollander
“Accents,” D’hollander
“Phyllis,” Theme and 2 Variations, Van Eyck
“Sarabande” from Cello Suite in D, Bach
“Sunrise, Sunset,” Bock
“Tonight” from *West Side Story*, Bernstein
- 1:10–1:30 pm: *Helen Cumberbatch '16*
Six Elizabethan Songs
“Pedal Aria,” Gouwens
“Gavotte,” DeFesch
“Trumpet Voluntary,” Clarke
- 2:40–3:00 pm: *Isabelle Schoppa '17*
“Prelude #1 in C,” Bach
“Sarabande,” Barnes
“Siciliano,” Ricci
“In Memoriam,” Courter
Camelot Medley
- 4:10–4:30 pm: *Nina Broocks '16*
“Campane a Sera,” Rota
“Gymnopedie,” Satie
“Mad World”
“Suite Archaique,” Clement

Conference at a Glance

Themes	9:30–10:40am	11:00am–12:10pm	Lunch*
Humanities	<p>Moment of Pause: Perceiving the Unseen (Exhibition) FND-126</p> <p>Environment in Literature (Panel Discussion) SCI-274</p> <p>Memory, History, and Subjectivity (Short Talks) FND-120</p> <p>Politics, Economics, and Religion (Short Talks) PNE-239</p> <p>Culture, Experience, and Practice (Short Talks) SCI-277</p> <p>Establishing a Voice: Attempts to be Heard (Short Talks) SCI-377</p> <p>Music to My Ears (Short Talks) JAC-AUD</p>	<p>Turning a New Leaf: An Introduction to Book Structures (Interactive Teaching Presentation) Clapp Book Arts</p> <p>Where the Visual Meets the Sonic (Panel Discussion) JAC-AUD</p> <p><i>That Time of the Month: A Crowdsourced Zine on Menstruation and Identity</i> (Exhibition) SCI-274</p> <p><i>Milano</i> and Its Neighbors (Exhibition) Davis Museum Entrance</p> <p>Media and Marginalization (Short Talks) GRH-330</p> <p>Resistance, Culture, and Community (Short Talks) FND-128</p> <p>Art Through the Ages (Short Talks) JAC-450</p>	
Science and Technology	<p>Singing in the Brain: Neural Correlates of Learning and Memory in Songbirds (Panel Discussion) SCI-270</p> <p>BacPack for New Frontiers: An Interactive Museum Exhibit for Synthetic Biology (On-Location Presentation) SCI-104</p> <p>Small Organisms, Big Impact (Short Talks) PNE-339</p> <p>A Bug's Life (Short Talks) FND-128</p> <p>Applying the Liberal Arts to Critical Health Problems (Short Talks) PNE-139</p> <p>Bio and Chem (Short Talks) SCI-E111</p> <p>The Ruhlman Explore (computer application) ALH-Ballroom</p>	<p>Sparking Mathematical Excitement through Games and Puzzles (Interactive Teaching Presentation) SCI-392</p> <p>Building New Structures With Old DNA (Short Talks) FND-317</p> <p>Transportation and Signal Propagation (Short Talks) PNE-339</p> <p>The Ruhlman Explore (computer application) ALH-Ballroom</p>	
Social Sciences	<p>What Do You Mean You Invented a Language? (Panel Discussion) SCI-E211</p> <p>Perspectives from the Freedom Project I: Education for the 21st Century (Panel Discussion) FND-225</p> <p>Thinking and Rethinking Economics (Short Talks) SCI-396</p> <p>Building Families (Short Talks) SCI-256</p> <p>What Makes Each Mind and Brain Unique (Short Talks) GRH-130</p>	<p>Digging into the Past: A Holocaust Education and Service Trip to Poland (Panel Discussion) SCI-277</p> <p>Ecuadorian Access to Formal and Informal Health Care in Massachusetts (Panel Discussion) SCI-396</p> <p>Perspectives from the Freedom Project II: Race, Place, and Opportunity—Implications for Freedom and Social Mobility (Panel Discussion) FND-225</p> <p>Model Behavior: Economic Models of Household and Firm Behavior (Panel Discussion) SCI-E211</p> <p>Calderwood Seminars in Public Writing: Engaging Interviews (Panel Discussion) SCI-104</p> <p>Inside the Mind and Life of the Child (Short Talks) FND-120</p> <p>Intervention and Prevention (Short Talks) GRH-130</p> <p>From Research to Reform: The Role of Action Research in Educational Change (Panel Discussion) PNE-127</p>	

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

1:30–2:40pm	3:00–4:10pm	4:30–5:40pm
<p>Women and Power in the Middle Ages: Breaking the Medieval Stereotype (Panel Discussion) SCI-392</p> <p>Community: An Artistic Exploration of Wellesley's Community Through Yik Yak (Exhibition) SCI-264</p> <p>A New Look with An Artful Eye: Jin Yunpeng's Lettered Scrolls in the Davis Museum (Exhibition) SCI-256</p> <p>Performances and Constructions of Gender (Short Talks) PNE-339</p> <p>Past and Present: Classical Cultures, Contemporary Issues (Short Talks) PNE-127</p> <p>Poster Session SCI Focus</p>	<p>Defining Korean Identity Abroad and at Home (Panel Discussion) SCI-278</p> <p>Cold War Poetics: Defiance in the Margins (Exhibition) SCI-277</p> <p>Behind the Curtain: Process to Performance (Panel Discussion) JAC-450</p> <p>Children of Apartheid: Reflecting on Years of Discrimination through Lullabies (Performance) JAC-AUD</p>	<p>Our Storied World: Digital Storytelling as Cultural Anthropology (Panel Discussion) SCI-396</p> <p>The Selfie in American Life (Panel Discussion) SCI-278</p> <p>Shakespeare Society: Twelfth Night and Much Ado About Nothing (Short Performance) JAC-450</p> <p>Year Zero: A Visual Narrative of the Cambodian Genocide (Exhibition) SCI-256</p> <p>Stratified Elevations (Exhibition) SCI-264</p>
<p>Exploration of a Potent Novel Anticancer Agent and Its Molecular Mechanism (Panel Discussion) GRH-130</p> <p>The Relationship between the Innate Immune System and Adult Neurogenesis in the Crayfish, <i>Procambarus clarkii</i> (Panel Discussion) GRH-330</p> <p>Toward Environmental Justice: An Interdisciplinary, Community-Based Approach to Address Urban Soil Lead (Panel Discussion) PNE-139</p> <p>Cracking the Code: Computers and You (Short Talks) FND-120</p> <p>A Fundamental Perspective: Math and Physical Chemistry Describe the World (Short Talks) SCI-278</p> <p>The Ruhlman Explore (computer application) ALH-Ballroom</p> <p>Poster Session SCI Focus</p>	<p>Nanoscience: Cancer, Drugs and Other Innovations (Panel Discussion) SCI-396</p> <p>MuSme (Panel Discussion) SCI-104</p> <p>Geochemistry of the Built Environment (Panel Discussion) SCI-377</p> <p>Twenty Years of Ruhlman Under the Loop of Data Science (Panel Discussion) PNE-239</p> <p>Bodies in Motion (Short Talks) GRH-330</p> <p>Thoughts About Thoughts: Computations of the Brain (Short Talks) GRH-130</p> <p>The Ruhlman Explore (computer application) ALH-Ballroom</p>	<p>Characterizing Structures and Functions of Histone-Derived Antimicrobial Peptides via Experimental and Computational Methods (Panel Discussion) GRH-130</p> <p>Molecular Matchmaking: Using Computational Techniques to Study and Design Perfect Protein Matches (Panel Discussion) GRH-330</p> <p>Vision and Art: Independent Interdisciplinary Investigations of the Human Visual System (Panel Discussion) FND-120</p> <p>Science in the Great Outdoors (Short Talks) SCI-277</p> <p>The Ruhlman Explore (computer application) ALH-Ballroom</p>
<p>Economic Analyses of Education, Health Care, and Voting Behavior (Panel Discussion) SCI-104</p> <p>Perspectives from the Freedom Project III: Urban School Choice—Inequity by ZIP Code (Panel Discussion) FND-225</p> <p>Understand Each Other and Ourselves: Research at Wellesley College (Short Talks) FND-317</p> <p>Language Expression in Song, Writings, and Speech (Short Talks) SCI-274</p> <p>Global Issues From Resources to Warfare (Short Talks) PNE-239</p> <p>Poster Session SCI Focus</p>	<p>"But First, Let Me Take a Selfie": Analyzing the Role Social Media Plays in the "Selfie Generation" (Panel Discussion) FND-120</p> <p>Perspectives From the Freedom Project IV: Rethinking Criminalization of Prostitution (Panel Discussion) FND-225</p> <p>Multicultural Explorations in Israel (Panel Discussion) SCI-392</p> <p>Mellon Mays Research Imperatives I (Panel Discussion) SCI-274</p> <p>Real and Imagined Relationships (Short Talks) PNE-127</p> <p>Integration, Reintegration, Disintegration (Short Talks) FND-317</p>	<p>Carbon Copy: A History of Greenhouse Gas Emissions at Wellesley College, 1990-2015 (Panel Discussion) SCI-104</p> <p>Mellon Mays Research Imperatives II (Panel Discussion) SCI-274</p> <p>Perspectives From the Freedom Project V: Censorship in International Perspective (Panel Discussion) FND-225</p> <p>Formal and Informal Education (Short Talks) PNE-239</p> <p>We're Only Human (Short Talks) SCI-377</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.

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Conference Schedule

8:30–9:30am Continental Breakfast	<i>Continental breakfast served in Pendleton Atrium and Science Center Sage Lounge.</i>	
9:30–10:40am Humanities	Moment of Pause: Perceiving the Unseen (Exhibition) <i>Jaehyun Jennie Kim '16, Art Studio/Economics</i>	FND-126
	Environment in Literature (Panel Discussion)	SCI-274
	All Hail the Whale: Cetacean Metaphor, Monarchy, and Monstrosity in Shakespeare and Melville <i>Anna C. Everett '16, English</i>	
	How Does Your Garden Grow: Nature and Ecology in <i>Paradise Lost</i> <i>Ting Shan Lee '16, English/Economics</i>	
	Cows and Churches: Exploring Rural New Mexican Identity Through Fiction <i>Chloe M. Williamson '16, English and Creative Writing</i>	
	Memory, History, and Subjectivity (Short Talks Group)	FND-120
	Martinique on My Mind: Returning to an Ancestral Home in Search of Family History <i>Lucy T. Anderle '16, English and Creative Writing</i>	
	Yesterday Is Here: A Poetic Exploration of Interpretation, Inheritance, and Memory <i>Claire S. Verbeck '16, English and Creative Writing</i>	
	William Faulkner's Presence in the Latin American Boom <i>Mariajose Rodriguez Plieg '16, English/Economics</i>	
	Woolf and Faulkner: Truth Through Human-Object Relationships <i>Genevieve E. Rogers '16, French/English</i>	
	Politics, Economics, and Religion (Short Talks)	PNE-239
	Uncovering the Business History of Communist China (1949-1978) <i>Zhongji Wu '16, Economics/History</i>	
	Nagasaki as "City of Prayer": From the Jesuit Mission in 1549 to the Atomic Bomb in August 1945 <i>Arianna G. Regalado '18, Undeclared</i>	
	Nehruvian India: The Use of Economic Planning to Rapidly Industrialize an Agricultural Economy <i>Zainab Younus '17, International Relations-Economics</i>	
	Decolonizing the African City: Realizing Visions of an Authentically Postcolonial African City <i>Pelumi O. Botti '16, International Relations-History</i>	
	Culture, Experience, and Practice (Short Talks)	SCI-277
	How to Live to Be 100: What Traditional Chinese Medicine Can Teach Us About Living a Happier, Healthier Life <i>Caitlin P. Bailey '16, East Asian Studies; Ana Isabelle M. van de Walle '17, Economics/Chinese Language and Culture</i>	
	Cinema all'italiana: Working for the <i>Journal of Italian Cinema and Media Studies</i> <i>Gabrielle J. Van Tassel '16, English and Creative Writing; Alessandra SalutI '16, Political Science/French Cultural Studies</i>	

Lost in Spain, Found in Translation: Vicente Aleixandre (Nobel Prize in Literature, 1977) in the English-Speaking World

Nicole A. Olichney '16, Spanish/Psychology

Spaces of Wonder

Jayne Yan '16, Art Studio

Establishing a Voice: Attempts to Be Heard (Short Talks)

SCI-377

Beyond Boobtube: From NBC to Google

Sarah F. Bailin '16, Computer Science/Cinema and Media Studies; Tara Gupta '16, Media Arts and Sciences

El significado de su salud: Social Determinants of Health, Public Policy, and Mexican-Born Women in Chicago

Nikita U. Saladi '16, Neuroscience/Women's and Gender Studies

Rory Gilmore: The Fictional Embodiment of Problematic Feminism

Kathryn (Kate) S. Johnson '16, Cinema and Media Studies

Heard: The Gendered Racializations of Muslim Americans in the 21st Century

Ananya M. Ghemawat '17, Political Science

Music to My Ears (Short Talks)

JAC-AUD

Old-Time: Toe-Tapping Dance Music and Race in the Music Industry

Fiona M. Boyd '16, French/Music

To Be Totally Free: Sofia Gubaidulina, Galina Ustvolskaya, and the Search for Spiritual Liberation in the Soviet Union

Kathleen R. Regovich '16, Music

Science and Technology

Singing in the Brain: Neural Correlates of Learning and Memory in Songbirds (Panel Discussion)

SCI-270

Stela P. Petkova '16, Neuroscience; Houda G. Khaled '16, Biochemistry; Rie K. Maeda '16, Neuroscience; Leila T. Elabbady '16, Neuroscience

BacPack for New Frontiers: An Interactive Museum Exhibit for Synthetic Biology (On-Location Presentation)

SCI-104

Rachel S. Kwon '17, Cognitive and Linguistic Sciences; Vivien Chen '18, Computer Science; Samuila (Sam) Y. Mincheva '17, Computer Science

Small Organisms, Big Impact (Short Talks)

PNE-339

Initial Colonizers of the Plastisphere, a New Marine Ecosystem

Helena I. McMonagle '16, Biological Sciences

Evaluating the Localization of Sid2p/Mob1p During Cytokinesis

Lois M. Kwon '16, Biological Sciences

Hybridization: Understanding the Invasive Impact of an Introduced Species on Endemic Species in the Galápagos Archipelago

Sarah J. Pangburn '16, Biological Sciences

Observing the Microbial Community Dynamics of a Permafrost Thaw Ecosystem

Amelia R. McClure '16, Biological Sciences

A Bug's Life (Short Talks)

FND-128

Exploring the Role of the Hedgehog Signaling Pathway in the Tobacco Hornworm, *Manduca sexta*
Surisadai (Suri) Aquit '18, Undeclared

The Role of Vvl in Size Regulation in the Tobacco Hornworm, *Manduca sexta*
Victoria R. Wang '16, Biological Sciences

Two Paths Diverge: Exploring the Threshold Weight in *Manduca sexta*
Zhou Wang '16, Biological Sciences

Transcriptional Regulation of Ecdysteroid Biosynthesis Is Conserved Between Hemimetabolous and Holometabolous Insects
Prioty F. Sarwar '16, Biochemistry

Applying the Liberal Arts to Critical Health Problems (Short Talks)

PNE-139

Synergistic Drug Combinations Targeting Leukemia
Emily S. Lee '16, Biochemistry

Problems Framing the Situation: Exploring the Relationship Between Nongovernmental Organizations and Donors in African HIV/AIDS Work
Margaretta C. Mitchell '18, Anthropology

Incidentally Identified Pediatric Pituitary Microadenomas: To Treat or Not to Treat? That Is the Question
Adrienne E. Lage '16, Spanish

Air Pollution in Singapore: A Personalized Approach to Health
Meredith L. McCormack-Mager '16, Mathematics

Bio and Chem (Short Talks)

SCI-E111

Studying Drug-Receptor Interactions: Photolabeling Studies Related to Type II Diabetes
Erin C. Yang '16, Chemistry

Impacts of a High-Fat Diet on the Growth of Intestinal Stem Cells and Cellular Models
Cynthia F. Jung '17, Mathematics

Alternative Methods of Reductive Amination in the Synthesis of T-0632 Analogs in Order to Study Receptors Involved in Type II Diabetes
Emma K. Ambrogi '16, Chemistry

Investigating Blastema-Specific Factors in Limb Regeneration in the Flour Beetle, *Tribolium castaneum*
Ruth Seok '16, Biological Sciences

Social Sciences**What Do You Mean You Invented a Language? (Panel Discussion)**

SCI-E211

Julia T. Springer '16, Cognitive and Linguistic Sciences; Inkyung Sul '16, Philosophy/Cognitive and Linguistic Sciences; Mollie R. Krawitz '17, Russian; Emily C. Orgias '16, Cognitive and Linguistic Sciences; Yoonyoung Choi '16, Philosophy/Cognitive and Linguistic Sciences; Mackenzie Bruce '16, Cognitive and Linguistic Sciences; Celia Bourcy, Language Assistant

Perspectives From the Freedom Project I: Education for the 21st Century (Panel Discussion)

FND-225

Dominique Huang '19, Undeclared; Emma W. Lurie '19, Undeclared; Nicole (Nikki) C. Rodriguez '19, Undeclared

Thinking and Rethinking Economics (Short Talks)

SCI-396

No Guns Me, No Guns You: Strategic Moves in *Inglorious Basterds**Kate M. Loftus '16, Economics; Shruti Sitaram '16, Economics***Thinking Outside the Box: Evaluating the Efficacy of Ban the Box in Reducing Post-Prison Employment Barriers***Amy N. Wickett '16, Economics***Solidarity Economy Responses to Sex Trafficking***Marcelle-Gloria (Gloria) Samen '18, Economics***The Role of Radical Economics Within the Palestinian Boycott, Disinvestment, and Sanctions (BDS) Movement***Lydia (Hans) D. Han '18, Economics*

Building Families (Short Talks)

SCI-256

Tick-Tock Goes the Biological Clock: Wellesley College Seniors' Attitudes Toward Egg Freezing*Sabrina S. Zions '16, Women's and Gender Studies***The Mother's Dream—A Love Story for My People***So-yung Mott '16, Women's and Gender Studies***Why Do People Border Cross? Conceiving Children Through Gametes and Their Importance in Families***Jamie Yang '17, Mathematics***Making Babies: Reproductive Biomedicine, Gray Markets, and the Internet***Jacqueline Elise '16, Women's and Gender Studies*

What Makes Each Mind and Brain Unique (Short Talks)

GRH-130

No Effect of Driving Experience on Individuals' Navigation Ability: Evidence from New Wellesley Navigation Test*Zirui (Sabrina) Cheng '16, Psychology/Economics***Microexpression Decoding Ability Is Present in Untrained Participants: Above-Chance Performance Seen on Novel Task***Blair K. Daniel '16, Neuroscience; Sara Rama '16, Neuroscience***Trustworthiness, Where Are You? Novel Test of Individual Differences in Where People Look to Gauge Trustworthiness***Minjung (Julia) Kim '16, Psychology; Courtney A. Lang '16, Neuroscience***Is the Color of That Apple Really Red? Investigating Individual Differences in the Effect of Color Memory on Perception***You-Min (Evelyn) Lee '16, Neuroscience*

10:40–11:00am Break*Continental breakfast served in Pendleton Atrium and Science Center Focus.*

11:00am–12:10pm Humanities**Turning a New Leaf: An Introduction to Book Structures (Interactive Teaching Presentation)**

Clapp Book Arts

Isabella R. McDonald '17, Biological Sciences; Lisa V. Rodon '16, Art Studio/Media Arts and Sciences; Alison N. Savage '17, Media Arts and Sciences

Where the Visual Meets the Sonic (Panel Discussion)

JAC-AUD

Stephanie P. Villafane '17, Chemistry; Jacqueline Elise '16, Women's and Gender Studies

That Time of the Month: A Crowdsourced Zine on Menstruation and Identity (Exhibition) SCI-274
Hanna G. Day-Tenerowicz '16, Women's and Gender Studies

Milano and Its Neighbors (Exhibition) Davis Museum Entrance
Xiaorong (Sharon) Liu '17, Mathematics/Art History; Virginia G. White '17, Classical Civilization; Ningyi Xi '17, Art History

Media and Marginalization (Short Talks) GRH-330

Écrire l'occupation: Representations of the Enemy in Three Works by Irène Némirovsky
Chandler M. Abshire '16, French

From Mammy to Rudy: Representations of Black Women in Mass Media
Gabrielle S. Chapman '17, Economics

Resistance, Culture, and Community (Short Talks) FND-128

iEn voz alta!: Resistance in the Cuban Nueva Trova
Michelle A. Berrey DS, Latin American Studies

African Presence at Wellesley College
Cindy E. Coffee '16, Architecture

A Continual Evolution: The Reform of France's "Politique de la Ville" as an Urban Peace-Building Mechanism in the Suburbs of Paris
Pauline O. Day '16, Individual-Peace and Justice Studies

Art Through the Ages (Short Talks) JAC-450

Ladies in the Bath: Nude Portraiture in the French Renaissance
Sophie A. Kerwin '16, Art History/English

Beyond the Loom: Examining the Relationship Among Gender, Textiles, and Architecture at the Bauhaus
Orli C. Hakanoglu '16, Architecture

Science and Technology **Sparking Mathematical Excitement Through Games and Puzzles (Interactive Teaching Presentation)** SCI-392
Lyubov Kapko '18, Mathematics; Paige N. Cheatham '18, Undeclared

Building New Structures With Old DNA (Short Talks) FND-317

Studying DNA Hairpin Stability and Octahedral Rhodium Complex Binding
Sally R. Ruderman '16, Biochemistry

Synthetic Finite State Machines in Living Cells
Alyssa C. Ferris '16, Biochemistry

Analyzing the Nature of DNA G-Quadruplex Formation in the *Bdellovibrio bacteriovorus* Genome
Hikari Murayama '16, Individual-Chemical Physics; Sally P. Shepardson-Fungairiño '16, Chemistry

Transportation and Signal Propagation PNE-339

A Study of Longevity in *Caenorhabditis elegans* Glutamate Transporter Mutants
Heankel Y. Cantu Oliveros '18, Neuroscience

Characterizing the Adhesive Properties of Cytokine Receptor IL17Ra During Brain Development
Ashley E. Park '16, Neuroscience

Investigating the Interaction Between the Cardiac Potassium Channels hERG and KvLQT1
Heidi Wade '16, Biochemistry

Social Sciences

Digging Into the Past: A Holocaust Education and Service Trip to Poland (Panel Discussion) SCI-277
Cecilia F. Nowell '16, Comparative Literature/Political Science; Chelsea L. Roston '19, Undeclared; Roza Trilesskaya '16, Economics; Arianna G. Regalado '18, Undeclared; Delanie N. Goerig '16, Anthropology; Apoorva Arora '16, Economics

Ecuadorian Access to Formal and Informal Health Care in Massachusetts (Panel Discussion) SCI-396
Nina T. McKee '16, Political Science; Ana K. Martinez '17, Economics; Loren J. Lock '16, Women's and Gender Studies; Charlotte E. Kaufman '18, Individual-Peace and Justice Studies; Suma S. Cheru '18, Anthropology; Alondra Navarro '18, Undeclared

Perspectives From the Freedom Project II: Race, Place, and Opportunity— Implications for Freedom and Social Mobility (Panel Discussion) FND-225
Fatoumata Bah '18, Biochemistry/Spanish; Vipasana Karkee '19, Undeclared; Emily N. Moss '19, Undeclared

Model Behavior: Economic Models of Household and Firm Behavior (Panel Discussion) SCI-E211
Hero M. Ashman '16, Economics; Liang Zhang '16, Economics/Mathematics; Hui (Sabrina) Li '16, Economics/Mathematics; Wing Yan (Sharon) Shiao '16, Economics/Mathematics

Calderwood Seminars in Public Writing: Engaging Interviews (Panel Discussion) SCI-104
Adele M. Clifford '16, Biological Sciences; Jean Sol Kim '16, Psychology; Carolyn A. Chelius '16, Economics/ Environmental Studies; Christina I. Phelps '17, Sociology

Inside the Mind and Life of the Child (Short Talks) FND-120

The Effect of Iconicity Type on Preschoolers' Gesture Learning: A Role for Embodiment?
Jenny Chen '16, Psychology

How Technology Shapes Children's Creativity: Differences in Preschoolers' Paper Versus iPad Drawings
Elizabeth M. Bilsborough '16, Psychology; Frances G. Whiting '16, Psychology

Stigma of Mental Illness in South Asian Cultures: Harmful Attitudes and their Socialization Into Children
Tahani R. Chaudhry '16, Psychology

"It's Not What You Say, It's How You Say It": The Role of Language in Children's Gesture Choices
Kristin J. Williams '16, Psychology

Intervention and Prevention (Short Talks) GRH-130

Not Just a Nurse: Peace Work in Jerusalem's Hadassah Ein Kerem Hospital
Jordan R. Hannink '16, Women's and Gender Studies

Developing a Depression Intervention for Women With Obstetric Fistula in Gondar, Ethiopia
Mariya C. Patwa '16, Chemistry

Grappling With Traumatic Memories: How Sites of Memory Engage in the Process of Humanization
Isabelle L. St. Clair '17, Individual-Peace Studies

Want a Nudge With That?: The Ethics of Using Libertarian Paternalism for Obesity Prevention
Sophia H. Gibert '16, Philosophy/Individual-Biology and Society

From Research to Reform: The Role of Action Research in Educational Change (Panel Discussion) PNE-127
Michelle S. Chung '16, Psychology; Meridian A. Witt '16, Media Arts and Sciences; Dorcas V. Thompson '17, Women's and Gender Studies; Morgan L. Millon '17, Political Science

**12:10–1:30pm
Lunch**

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

**1:30–2:40pm
Humanities**

Women and Power in the Middle Ages: Breaking the Medieval Stereotype (Panel Discussion) SCI-392

Matilda of Tuscany and the Investiture Controversy
Naomi L. Whitney-Hirschmann '19, Undeclared

Matilda of England and the First English Civil War
Seraphina E. Oney '16, History

Women and the Transmission of Texts in Medieval Europe
Brianna S. Renta '16, English/Medieval and Renaissance Studies

Community: An Artistic Exploration of Wellesley's Community Through Yik Yak (Exhibition) SCI-264
Abigail M. Jones '16, Art Studio/Mathematics

A New Look with An Artful Eye SCI-256

Old Meets New, East Meets West: Jin Yunpeng's Lettered Scrolls in the Davis Museum (Exhibition)
Ningyi Xi '17, Art History

The Secret Sculptor: An Everyday Object in New Light
Shweta Patwardhan '16, International Relations-Political Science

Performances and Constructions of Gender (Short Talks) PNE-339

Subverting the Silence: Surrealism, Sexuality, and Queer Self-Fashioning in the Poetry of Federico García Lorca
Laura B. Mayron '16, English/Spanish

Consuming Hello Kitty: Saccharide Cuteness in Japanese Society
Kimberlee H. Coombes DS, Japanese Language and Culture

Border Crossings: Women and Migration in the Works of Miguel de Cervantes
Charlotte J. Weiss '16, Spanish

"Sexless Beings": Approaches and Responses to Women's Medical Education in 19th-Century America
Ayesha N. Anwar '16, History

Past and Present: Classical Cultures, Contemporary Issues (Short Talks) PNE-127

Is Love Translatable?: Discussing the Translatability of Culturally Specific Ideas in Literature Through a Cognitive Literary Studies Perspective
Xueni (Emily) Jin '17, Comparative Literature

An Instant Classic: Temporality, Immortality, and Mediation in Horace's *Exegi monumentum*
Emily A. Mullin '16, Classics

Sacred Time and Secular Power: Bells in the Soundscape of Medieval Arthurian Literature

Madeleine J. Smith '16, French/Medieval and Renaissance Studies

Rape as Spectacle: From Ovid and Livy to Game of Thrones

Katherine B. Goldsmith '16, Biological Sciences/Classical Civilization

Science and Technology

Exploration of a Potent Novel Anticancer Agent and Its Molecular Mechanism (Panel Discussion)

GRH-130

Milica Markovic '17, Biochemistry; Elisa J. Wang '18, Undeclared; Yin Y. Wang DS, Biochemistry; Emma E. Goodman '17, Biological Sciences; Jennifer C. Chang '17, Biochemistry; Martha K. Aywa '17, Biochemistry; Ronghao Zhou '17, Mathematics/Chemistry

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

GRH-330

Zena K. Chatila '16, Neuroscience; Megan E. McNeil '17, Neuroscience; Anushree Dugar '18, Undeclared; Kara M Banson '17, Neuroscience

Toward Environmental Justice: An Interdisciplinary, Community-Based Approach to Address Urban Soil Lead (Panel Discussion)

PNE-139

Rosalie M. Sharp '16, Environmental Studies; Meredith J. Wade '17, Environmental Studies; Idalmis Vaquero '16, Environmental Studies

Cracking the Code: Computers and You (Short Talks)

FND-120

Tutor-Complete: An Educational Game and Intelligent Tutoring System for Languages and Automata

Katherine A. Kjeer '16, Computer Science

Observing and Designing Experiences of Collaborative Learning in Computer Science

Natalie R. Sayed '18, Computer Science

GenomiX: A Novel Interaction Tool for Self-Exploration of Personal Genomic Data

Christina S. Pollalis '16, Political Science; Liliana N. Westort '18, Cognitive and Linguistic Sciences

Profiling Locking Patterns in Multithreaded Programs

Kasey Shen '17, Computer Science

A Fundamental Perspective: Math and Physical Chemistry Describe the World (Short Talks)

SCI-278

A Mathematician's View of Scheduling

Simona Stanislavova (Simona) Boyadzhyska '16, Computer Science/Mathematics

Generalizations of Nil Clean Elements and Rings

Alexi T. Block Gorman '16, Mathematics

Planes, Drones, and Helium Balloons: Developing Instruments and Probes for Terrestrial Exploration

Rose K. Gibson '16, Astrophysics

Social Sciences

Economic Analyses of Education, Health Care, and Voting Behavior (Panel Discussion)

SCI-104

Jacqueline Li '16, Economics; Taylor J. Cranor '16, Economics; Evelyn E. Taylor-McGregor '16, Economics; Suzanne K. Barth '16, Economics/Sociology

Perspectives From the Freedom Project III: Urban School Choice—Inequity by ZIP Code (Panel Discussion)

FND-225

Elizabeth (Ellie) M. Dougherty '18, Political Science; Mehak K. Sarang '18, Physics; Karen Su '19, Undeclared

Understanding Each Other and Ourselves: Research at Wellesley College (Short Talks) FND-317

Body Image, Dating Application Usage, and Risky Sexual Behavior

Caroline Arnold '16, Psychology; Tess Opferman '16, Psychology/Spanish; Meryl Rosenberg '16, Psychology

Examining the Effect of Language Brokering on College Students

Cordelia Zhong '17, Psychology; Kaeum Kim '16, Psychology; Jennifer Guzman '16, Psychology

The Imposter Phenomenon and Nonacademic College Life

Sophie Donohue '16, Psychology; Kyra Huertas '16, Psychology; Mashadi Kekana '16, Psychology

Language Expression in Song, Writings, and Speech (Short Talks) SCI-274

Love and Power in Lyrics: The Gender Differences in Songs by Male and Female Artists Across Genres and Generations

Jeanne Gallee '16, Cognitive and Linguistic Sciences

The Mystery of Japan's Disappearing Brazilian Population

Helen Gordon Colby '17, Japanese Language and Culture

An Investigation Into the Europeanization of the Written Chinese Vernacular

Katherine J. Hu '16, Cognitive and Linguistic Sciences

Foreign Accent Classification

Emily Ahn '16, Cognitive and Linguistic Sciences

Global Issues From Resources to Warfare (Short Talks) PNE-239

Implementation and Effects of India's School-Based Iron Supplementation Program

Hannah K. Ruebeck '16, Economics

Redefining the Role of Female Ex-Guerillas in Colombia's Demobilization and Reintegration Process

Savitri Restrepo Alvarez '16, International Relations-Political Science

Just War, Motivations, and Legitimacy: The Case of Military Intervention in Syria

Beba Cibralic '16, Philosophy/Political Science

Impact Assessment on Insulation in Northern Pakistan

Natalie D. Catalan '18, Economics

2:40–3:00pm Break

Refreshments served in Pendleton Atrium and Science Center Focus.

**3:00–4:10pm
Humanities**

Defining Korean Identity Abroad and at Home (Panel Discussion) SCI-278

Amanda O. Trabulsi '16, Russian Area Studies; Nicole (Nikki) C. Rodriguez '19, Undeclared; Mana Muchaku '18, Economics; Amanda L. Kraley '17, Undeclared

Cold War Poetics: Defiance in the Margins (Panel Discussion) SCI-277

Jessica Wu '18, Undeclared; Grace Y. Park '16, Political Science; So-yung Mott '16, Women's and Gender Studies; Jiyoung (Ashley) A. Kim '19, Undeclared; So Jin Ki '19, Undeclared; Emily Chun '17, History; Aya Ross '19, Undeclared; Kasey Shen '17, Computer Science

Behind the Curtain: Process to Performance (Panel Discussion) JAC-450

Natalie J. Solomon '16, Cinema and Media Studies/Theatre Studies; Elisabeth A. Yancey '16, Theatre Studies; Ariela S. Nazar-Rosen '16, English; Jessica M. Forden '17, Economics/Theatre Studies

Children of Apartheid: Reflecting on Years of Discrimination Through Lullabies (Performance) JAC-AUD

Cathleen McGovern '16, Music

Science and Technology	Nanoscience: Cancer, Drugs, and Other Innovations (Panel Discussion)	SCI-396
	<i>Amal W. Cheema '17, Biochemistry; Olivia K. Gada '17, Biochemistry; Kathleen K. Chen '17, Sociology/Chemistry</i>	
	MuSme (Panel Discussion)	SCI-104
	<i>Amal Tidjani '18, Undeclared; Priscilla A. Lee '18, Computer Science; Eileen Cho '16, Neuroscience</i>	
	Geochemistry of the Built Environment (Panel Discussion)	SCI-377
	<i>Ciaran L. Gallagher '17, Individual-Environmental Chemistry; Emma Van Scoy DS, Undeclared; Rosalie M. Sharp '16, Environmental Studies; Hannah C. Davelman '16, Economics/Environmental Studies; Amanda B. Hernandez '18, Environmental Studies; Hayley N. Jewett '16, Environmental Studies; Hannah Oettgen '17, Geosciences; Alexis Corcoran '18, Biological Sciences; Nisreen Abo-Sido '18, Environmental Studies; Kimberly Chia Yan Min '19, Undeclared; Meredith Wade '17, Environmental Studies/History; Idalmis Vaquero '16, Environmental Studies</i>	
	Twenty Years of Ruhlman Under the Loop of Data Science (Panel Discussion)	PNE-239
	<i>Hannah Murphy '19, Undeclared; Meredith McCormack-Mager '16, Mathematics; Kate Kenneally '18, Computer Science; Whitney Fabnbulleh '17, Media Arts and Science/Chinese Language and Culture; Clara Sorensen '18, Biological Science; Mary Ruth Ngo '17, Computer Science; Aline Mitsuzawa '18, Undeclared; Jacqueline L. Hom '18, Computer Science; Anne Schwartz '18, Computer Science; Nina-Marie Amadeo '18, Computer Science</i>	
	Bodies in Motion (Short Talks)	GRH-330
	Finding the Invisible Needle: How Directional Dark Matter Detectors Help Us Burn the Haystack <i>Catherine R. Nicoloff DS, Physics</i>	
	From Quantum Materials to Pendulums: Finding the Intersection Between High-Level Research and Introductory Physics <i>Caroline S. Martin '18, Undeclared</i>	
	Butterflies, Zigzags, and Photons: Bioinspired Light Confinement <i>Emma C. Regan '16, Physics</i>	
	Second Harmonic Generation Imaging of a Magnetic Topological Insulator <i>Carina A. Belvin '16, Physics/Mathematics</i>	
	Thoughts About Thoughts: Computations of the Brain (Short Talks)	GRH-130
	Striosomal Interactions: Experiments on Behavior and the Brain <i>Julide E. Iye '18, Undeclared</i>	
	Theory of Mind and Learning Models: Unraveling How We Think About Others' Thoughts <i>Isabelle A. Rosenthal '16, Neuroscience</i>	
	Relativizing Conditional Probability <i>Xueyin Zhang '16, Philosophy/Mathematics</i>	
Social Sciences	"But First, Let Me Take a Selfie": Analyzing the Role Social Media Plays in the "Selfie Generation" (Panel Discussion)	FND-120
	<i>Mariana Hernandez '19, Undeclared; Olivia M. Strobl '19, Undeclared, Michelle An Lei (Michelle) Yu '19, Undeclared; Darlene Harsono '19, Undeclared; Gabriela (Steffany) S. Poveda-Solorio '19, Undeclared</i>	
	Perspectives From the Freedom Project IV: Rethinking Criminalization of Prostitution (Panel Discussion)	FND-225
	<i>Holly N. Raiborn '18, Economics; Margaret O. Flynn Sapia '19, Undeclared</i>	

Multicultural Explorations in Israel (Panel Discussion) SCI-392
Ariel T. Cohen '18, Undeclared; Sabrina A. Ruiz '18, International Relations-Political Science; Marissa R. Menzel '18, Environmental Studies

Mellon Mays Research Imperatives I (Panel Discussion) SCI-274

Exploring Cape Malay Identity Through the Lens of Food
Allyson E. Ang '17, Sociology

La lotería de la vida: A Family Ethnography
Cassandra Flores-Montano '16, Women's and Gender Studies

A Shared Experience
Grace Park '16, American Studies/Political Science

Reflecting on Roots: Exploring the Saliency of African-American Ethnicity in an Increasingly Diverse Black America
Tamar Davis '16, Sociology

Self-Love in Aristotle's *Nicomachean Ethics* and *Eudemian Ethics*
Claudia Yau '16, Philosophy

Real and Imagined Relationships (Short Talks) PNE-127

Queen and King of the Playground: Understanding Gender Roles in a Preschool Classroom
Shelby (Riley) J. Abeles '16, Psychology

How Our Irritable Selves Read the Emotions of Others
Alexandra (Ali) L. Roule '16, Psychology

Remembering the Imaginary: Memory for Imagined Relationships and the Connection Between Fantasy Orientation and Social Ability in Adolescents
Grace E. Bennett Pierre '16, Psychology

Imaginary Companions: Complexity and Relationship Type
Hea Jung Lee '16, Psychology

Integration, Reintegration, Disintegration (Short Talks) FND-317

The Social Dimensions of War: Factors of Operational Success for Russia's Military
Marilis (Mari) E. Dugas '16, Political Science/Russian Area Studies

What Fuels Political Violence?: Analyzing of the Effects of Natural Resources on Insurgency Warfare
Alice (Alice) Y. Liang '16, Economics/Political Science

When Heads Roll: Assessing the Effectiveness of Mexico's Decapitation Strategy
Delia M. Arias De Leon '16, Political Science

Integration of Syrian Refugees in Jordan
Andrea P. Aguilar '16, Political Science

4:10–4:30pm Break

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

**4:30–5:40pm
Humanities**

Our Storied World: Digital Storytelling as Cultural Anthropology (Panel Discussion) SCI-396
Kavindya Thennakoon '19, Undeclared; Maryam Chloe Pervaiz '19, Undeclared; Faiza S. Aslam '19, Undeclared; Vivian D. Zhang '19, Undeclared; Dina Ahmad Hasan Al-Zu'Bi '19, Undeclared; Malak Alsayyad '19, Undeclared; Blake Cohen '19, Undeclared; Chloey Garza '19, Undeclared; Hema Venkata '19, Undeclared

The Selfie in American Life (Panel Discussion) **SCI-278**
Helen M. Andersen '19, Undeclared; Daniela Kreimerman '19, Undeclared; Margaret (Margaret Anne) A. Collins '19, Undeclared; Se Yun Cheon '19, Undeclared; Diana Cruz '19, Undeclared

Shakespeare Society: Twelfth Night and Much Ado About Nothing (Short Performance) **JAC-450**
Katherine (Kate) M. Bussert '16, Theatre Studies/English; Rowan S. Winterwood '16, Cognitive and Linguistic Sciences/Theatre Studies

Year Zero: A Visual Narrative of the Cambodian Genocide (Exhibition) **SCI-256**
Julia S. Um '16, Economics

Stratified Elevations (Exhibition) **SCI-264**
Zhixing (Wanwan) Fei '16, Art Studio

Science and Technology **Characterizing Structures and Functions of Histone-Derived Antimicrobial Peptides via Experimental and Computational Methods (Panel Discussion)** **GRH-130**
Amy Yuan '16, Chemistry; Lei Wei '16, Biochemistry; Sukin (Hannah) Sim '16, Individual-Chemical Physics; Carla P. Perez '18, Chemistry; Sung Hyun (Sarah) Lee '16, Chemistry; Dania M. Figueroa '17, Biochemistry

Molecular Matchmaking: Using Computational Techniques to Study and Design Perfect Protein Matches (Panel Discussion) **GRH-330**
Fides G. Nyaisonga '16, Chemistry; Nusrat Jahan '16, Chemistry; Diane Cheon '17, Chemistry; Yuanyuan (Laura) Luo '17, Chemistry/Mathematics

Vision and Art: Independent Interdisciplinary Investigations of the Human Visual System (Panel Discussion) **FND-120**
Nancy A. Zhang '16, Mathematics; Ali N. Johnson '16, Neuroscience; Jessica N. Kelemen '16, Neuroscience; Hope C. Fuller-Becker '16, Neuroscience; Amanda B. Fath '16, Neuroscience; Sydney M. Cadiz '16, Neuroscience

Science in the Great Outdoors (Short Talks) **SCI-277**

Evaluating the Potential of Alkaline Battery Oxide Powders to Reduce Lead Mobility in Urban Agricultural Settings
Nisreen S. Abo-Sido '18, Environmental Studies; Ciaran L. Gallagher '17, Individual-Environmental Chemistry

Testing the Caldera Origin of the Blue Hills: U-Pb Geochronology of the Hancock Porphyry, Milton, MA
JoNan C. Bilodeau DS, Geosciences

The Effects of Pollen Stress During Larval Development on the Nursing Behavior of Adult Honeybees (*Apis mellifera*)
Corena M. Loeb '16, Biological Sciences

The Influence of Predatory Chemical Cues on the Foraging Behavior of *Hogna Lenta* Wolf Spiders
Ellice Patterson '16, Biological Sciences

Social Sciences **Carbon Copy: A History of Greenhouse Gas Emissions at Wellesley College, 1990-2015 (Panel Discussion)** **SCI-104**
Alyssa N. Brody '16, Political Science/Environmental Studies; Charlotte H. Benishek '16, Environmental Studies; Julie Rong '16, Environmental Studies; Samantha L. Brown '16, Environmental Studies; Catherine E. Burnett '16, Biological Sciences/Environmental Studies; Sofia C. Diaz De Villegas '16, Biological Sciences/Environmental Studies; Sumner M. Hanula '17, Environmental Studies; Vivienne Tateyuskanskan DS, Environmental Studies; Leah M. Nugent '16, Environmental Studies/Anthropology; Rebecca A. Matteson '16, Environmental Studies/English; Rita Mary Hennigan '16, Environmental Studies; Hayley N. Jewett '16, Environmental Studies

Creating a New Vision: Reimagining Healthy Relationships Among LGBTQIAP+ Communities of Color and Complicating Narratives of Domestic Violence*Gabriela Asnaran '17, Women's and Gender Studies***Exploring Mental Health Perspectives Among Black and African-American College Students***Christiana Joseph '16, Anthropology***Radicalizing Community Colleges***Christina Phelps '17, Sociology***Teacher Activism: Addressing Inequalities in the Classroom***Huiying Chan '16, Individual-Ethnic Studies and Education Studies*

Perspectives From the Freedom Project V: Censorship in International Perspective (Panel Discussion)*Xueying Chen '16, Economics/English; Chuqi (Cassandra) Zheng '18, Mathematics, Caroline Bechtel '17, Political Science*

Formal and Informal Education (Short Talks)**Bones Don't Lie: Use of Archival and Forensic Perspectives to Understand the Origins of the Wellesley College Human Skeletal Anatomy Teaching Collection***Isabel (Izzy) M. Starr '16, Anthropology***Modernizing High School Mathematics: How 3D Printing and Modeling Technology Can Enhance Student Learning***Sophia N. Zupanc '19, Undeclared***Seed Kit: Creating a Lab-in-a-Box to Address Gendered Science Education Inequities in the Developing World***Caleb E. Bercu '16, Women's and Gender Studies***Public Education, Civic Engagement, and the Latinx Vote***Rita G. Marquez '16, Physics; Alejandra Cuin Miranda '16, Economics/Latin American Studies; Andrea P. Aguilar '16, Political Science*

We're Only Human (Short Talks)**Interpersonal Identity and Behavioral Motivations in Monozygotic and Dizygotic Twins***India H. Kerle '16, Psychology***Leadership Camps: Effective Ways to Enact Long-Term Change?***Celeste A. Globber '16, Psychology, India H. Kerle '16, Psychology***Shyness, Love-Shyness, and Individual Differences in Sexual Attitudes and Behavior***Alyson B. Randall '16, Psychology***Mind-Wandering Tendencies in Younger Adults***Anissa S. Sridhar '16, Neuroscience; Hannah W. Creutzfeldt '17, Neuroscience*

Jacqueline Loewe Fowler '47 Prize in Public Speaking

This year's Ruhlman Conference will host the Maurer Public Speaking Program's second annual **Jacqueline Loewe Fowler '47 Prize in Public Speaking** competition. The prize honors Mrs. Fowler's support of public speaking at Wellesley through her substantial contributions to the public speaking program established by Anne E. Maurer '51 and her husband Gilbert in 2012.

The four finalists, listed below, will be presenting throughout the day in PNE-239, and their talks can be viewed online at www.wellesley.edu/live.

Finalists (in Schedule Order)

- 9:30–10:40 am** **Zainab Younus '17**
International Relations-Economics
ADVISOR: *Nikhil Rao, History*
“Nehruvian India: The Use of Economic Planning to Rapidly Industrialize an Agricultural Economy”
- 1:30–2:40 pm** **Savitri Restrepo Alvares '16**
International Relations-Political Science
ADVISOR: *Christopher Candland, Political Science*
“Redefining the Role of Female Ex-Guerillas in Colombia's Demobilization and Reintegration Process”
- 4:30–5:40 pm** **Isabel M. Starr '16**
Anthropology
ADVISOR: *Adam Van Arsdale, Anthropology*
“Bones Don't Lie: Use of Archival and Forensic Perspectives to Understand the Origins of the Wellesley College Human Skeletal Anatomy Teaching Collection”
- 4:30–5:40 pm** **Sophia N. Zupanc '19**
Undeclared
ADVISOR: *Kenneth Hawes, Education*
“Modernizing High School Mathematics: How 3D Printing and Modeling Technology Can Enhance Student Learning”

Frequent Sources of Support for Student/Faculty Research

Brachman Hoffman Fund

Elizabeth Davis Cook Student Research Fund

Pamela Daniels '59 Fellowship

Educational Research and Development Committee

Virginia Fiske Fund

Howard Hughes Medical Institute

IBM Research Fund

Amabel Boyce James Fund for Summer Research in the Sciences

Keck Northeast Astronomy Consortium Grant

Sara Langer Fund for Research in Geosciences

John and Elizabeth Alden Little Science Fund

Janina A. Longtine Fund for Summer Research in the Natural Sciences

Massachusetts Space Grant Consortium Grant

Georgeanne Miller Mulhern Fund for Student/Research in the Sciences

National Buchet Fellowship

National Institutes of Health

National Science Foundation

Office of the Provost and Dean of the College

Barbara Peterson Ruhlman

Jerome A. Schiff Fellowships

Joan and Herbert Schilder Student Research and Travel Fund

Staley Fund for Cancer-Related Research

Robert and Karl Staley Fund

Fund for Summer Research in the Social Sciences

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:
10:40–11:00AM				BREAK
11:00AM–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:
2:40–3:00PM				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 rooms between or even during presentations.

Humanities

Moment of Pause: Perceiving the Unseen (Exhibition)

FND-126

Jaehyun Jennie Kim '16, Art Studio/Economics
ADVISOR: *Phyllis McGibbon, Art*

We pass by, walk through, and inhabit architectural spaces every day. However, these places are easily overlooked and dismissed. This project attempts to portray the visual structure of such spaces and investigates their implicit compositional qualities through an iterative process of drawing and printmaking. All of the images come from spaces I observed, experienced, and recorded in my visual journal. The transformative process of observing, experimenting, reacting, and finding new relationships allows me to reinterpret the space over time. The reinterpretation of spaces changes the viewer's perception and enhances the dialogue between graphic images.

Environment in Literature (Panel Discussion)

SCI-274

All Hail the Whale: Cetacean Metaphor, Monarchy, and Monstrosity in Shakespeare and Melville*Anna C. Everett '16, English*
ADVISOR: *Sarah Wall-Randell, English*

In my thesis, I have explored the role of whales in literature from Greek mythology to early English and American literature, including Shakespeare's *Pericles*, Lyly's *Gallathea*, and Melville's *Moby-Dick*. Whales are a powerful metaphor for politics on land, sexual predation, tyranny, and godliness. Dolphins have a unique connotation as being friendly toward humans, going as far back as the myth of Arion on the dolphin's back, and in Pliny's *Natural History*. I pay particular attention to queer readings of these texts as well as to the role that gender plays in them. Highlights include illustrations of early English conceptions of whales as scaly sea monsters, and Lyly's *Gallathea*, a 1592 play in which two fair maidens cross-dress as men in order to avoid being eaten by a sea monster and fall in love with each other, each believing that the other is a man. Cetaceous metaphor and queer love ensue!

How Does Your Garden Grow: Nature and Ecology in *Paradise Lost**Ting Shan Lee '16, English/Economics*
ADVISOR: *Sarah Wall-Randell, English*

There is a long tradition of associating gardens with earthly paradise. My thesis examines John Milton's representation of the Garden of Eden in *Paradise Lost*, specifically the relationship between humans and their environment. Milton's Eden raises questions about the role of active work in utopia, the tension between wilderness and the need for order, and expressions of desire in a garden setting. My work draws on ecocriticism by examining the prevailing environmental issues of the 17th century and the growing awareness about the negative impact humans can have on the Earth. In addition, I consider other literary visions of gardens offered by Shakespeare, Spenser, and Marvell that helped shape the character of Milton's garden. Lastly, I will speak about my tour of Renaissance-style gardens in England and how visiting gardens that Milton would have known and walked through in his lifetime has impacted my work.

Cows and Churches: Exploring Rural New Mexican Identity Through Fiction*Chloe M. Williamson '16, English and Creative Writing*ADVISOR: *Sarah Wall-Randell, English*

My senior creative writing thesis has been primarily an exploration of the intersection of identity and place. I have studied regional literature at Wellesley and abroad at Trinity College Dublin, but this year I turned my focus toward a place that holds great personal significance to me. I grew up on a cattle ranch in the eastern plains of New Mexico, nearly an hour's drive from the nearest town. With funding from the Pamela Daniels Fellowship, I was able to return to New Mexico, where I conducted interviews to further ground my writing in a specific sense of place. My final product will consist of a collection of short stories that examine the ways in which specific aspects of identity shape individuals' experiences of and interactions with their environment.

Memory, History, and Subjectivity (Short Talks Group)

FND-120

Martinique on My Mind: Returning to an Ancestral Home in Search of Family History*Lucy T. Anderle '16, English and Creative Writing*ADVISOR: *Timothy Peltason, English*

I was awarded the Schiff Fellowship in order to pursue research for my creative writing thesis. I will discuss the process of returning to my mother's home—the island of Martinique—to conduct oral histories with three different generations of women in my family. I will talk about the cultural differences that made interviewing in the Caribbean challenging, the process of practicing Creole, and how transcribing Creole to French to English informed the way in which I wrote my thesis. I will also talk about the general culture of the island itself, including a brief history of its colonization and what attracted me—a first-generation American—to return.

Yesterday Is Here: A Poetic Exploration of Interpretation, Inheritance, and Memory*Claire S. Verbeck '16, English and Creative Writing*ADVISOR: *Octavio González, English*

Everyone has ancestors. We grow up with the voices and stories of our elders, each of whom can share a singular perspective of the past. We memorize, retell, and adapt their stories as they become part of our own histories. These "postmemories" (a term coined by scholar Marianne Hirsch) connect generations despite temporal disconnect. They have an irrefutable impact, not only on the people we become but also on the ways we perceive the world and create our own narratives. My English honors thesis, a series of original poems, explores this phenomenon, focusing on shared understandings of addiction, war, and trauma. Each individual recalls these common experiences vividly and subjectively, and understanding the differences in these recollections offers a valuable conception of the past. How does our narrative heritage influence our choices and views? What differentiates history and memory? And why is poetry an appropriate format to explore these questions?

William Faulkner's Presence in the Latin American Boom

Mariajose Rodriguez Pliego '16, English/Economics

ADVISOR: *Lawrence Rosenwald, English*

Latin American writers in the 20th century were in search of a literary identity. Victoria Ocampo's Buenos Aires-based journal *Sur* translated literature from abroad and distributed it far into the corners of the region. Among these books were Faulkner's then-controversial novels and short stories, which made it to the hands of aspiring writers like Mario Vargas Llosa in Lima, Carlos Fuentes in Mexico City, and Gabriel Garcia Marquez in Cartagena. My thesis seeks to understand how each of these three writers read and appropriated Faulkner's techniques to portray the Latin American reality in the 1960s. I have explored topics such as theories of influence, the role of translation in literary influence, and the importance of narrative techniques.

Woolf and Faulkner: Truth Through Human-Object Relationships

Genevieve E. Rogers '16, French/English

ADVISOR: *Octavio González, English; Timothy Peltason, English*

A presentation of my thesis work studying how Virginia Woolf and William Faulkner communicate the inner minds of their characters through the relationships characters form with the objects and animals they encounter. Key texts studied include *To the Lighthouse* (Woolf, 1927) and *As I Lay Dying* (Faulkner, 1930), among others.

Politics, Economics, and Religion (Short Talks)

PNE-239

Uncovering the Business History of Communist China (1949-1978)

Zhongji Wu '16, Economics/History

ADVISOR: *Yoshihisa Matsusaka, History*

The business history of Communist China is an important subject of study that gets little attention from scholars. My senior thesis in history offers a new perspective on China's transformation from a planned economy in the 1950s to its market reforms in the 1980s. Specifically, it explores the emergence of business structures and strategies at the enterprise level aimed at overcoming some of the challenges that China faced as a developing socialist country. It begins with the development of small, self-sufficient

enterprises during the Great Leap Forward, often associated with the so-called "backyard steel furnace" movement, and the shift in the 1960s to new forms of business enterprises geared toward both promoting specialization and facilitation integration. By studying how Chinese economic actors at the enterprise level overcame bottlenecks as the country underwent rapid industrialization to catch up with advanced economies, I discover that the post-1978 reforms were foreshadowed by China's previous experiences.

Nagasaki as "City of Prayer": From the Jesuit Mission in 1549 to the Atomic Bomb in August 1945

Arianna G. Regalado '18, Undeclared

ADVISOR: *T. James Koderer, Religion*

Starting with the investigation of the Jesuits who came to Asia in the 16th century from the Basque region of Spain, first to Goa, India, then to Macau, China, and eventually to Nagasaki, Japan, my research focuses on the complex international geopolitical issues that led Japan and the United States, among others, into World War II. The decision to drop the second atomic bomb in Nagasaki was a result of the crucible of tragic histories involved in the transmission of Christianity to Japan, which Japan initially rejected, even deporting missionaries and torturing and murdering converts. In spite of this anti-Christian, anti-European, and anti-colonial campaign, some converts went "underground." Takashi Paul Nagai, the chief architect for turning Nagasaki into the "City of Prayer," in contrast to Hiroshima, which is remembered today as the "City of Anger," was a descendent of the "Clandestine Christians" of the 16th century. My research explores the Jesuit movements in Asia during the 16th century, the challenges they faced, and the transmission of Christianity to Japan that followed into the 20th century, particularly through the eyes of Shusaku Endo, a famous Roman Catholic Japanese author of the 20th century.

Nehruvian India: The Use of Economic Planning to Rapidly Industrialize an Agricultural Economy

Zainab Younus '17, International Relations-Economics

ADVISOR: *Nikhil Rao, History*

Gandhi described India as living in her villages. In comparison to the industrialized West, India's economy in 1947 was dominated by the agricultural sector. The

lack of capital goods industries, its meager manufacturing, and the foreign control of capital contributed to India's limited industrialization under colonial rule. India's first prime minister, Jawaharlal Nehru, looked toward the Soviet Union as well as toward indigenous economic thinkers as he led efforts to industrialize the country through his five-year plans. In my paper, I analyze Nehru's economic policies for both their success and failures in order to assess if planning was the best way for India to rapidly industrialize its agricultural economy.

Decolonizing the African City: Realizing Visions of an Authentically Postcolonial African City

Pelumi O. Botti '16, International Relations-History

ADVISOR: *Quinn Slobodian, International Relations-History*

Several African historians have famously recognized the challenges created by colonialism in colonial cities. While colonial rule has been argued to have brought modernization and urbanization to Africans, African colonial cities were often sites of terror, inequality, and racial segregation where those colonized were made disenfranchised. Thus, what became of these former colonial African cities that were designed to promote European superiority? How did African leaders and urban planners overcome the challenges inherited from colonialism? Finally, how did the ideologies of African postcolonial leaders influence urban plans? Through the case studies of Tanzania's capital Dodoma and Nigeria's capital Abuja, I will evaluate the methods and policies adopted by postcolonial governments to rid African cities of harmful colonial legacies and consequently decolonize the African urban space.

Culture, Experience, and Practice (Short Talks)

SCI-277

How to Live to Be 100: What Traditional Chinese Medicine Can Teach Us About Living a Happier, Healthier Life

Caitlin P. Bailey '16, East Asian Studies; Ana

Isabelle M. van de Walle '17, Economics/Chinese Language and Culture

ADVISOR: *Dai Chen, East Asian Studies*

Contrary to popular understanding, traditional Chinese medicine is more than the knowledge of acupuncture and

herbal science. This ancient Chinese philosophy—more of an art form than a branch of science—has been handed down through generations of Chinese scholars and practitioners. For many Chinese, it is a core principle of everyday living, encompassing understandings of culture, language, nutrition, activity, mental well-being, and nature. This talk aims to share an overview of our interdisciplinary approach to studying traditional Chinese medicine and Chinese cultural health customs this semester in our independent study, *The Chinese Philosophy of Balance*.

Cinema all'italiana: Working for the Journal of Italian Cinema and Media Studies

Gabrielle J. Van Tassel '16, English and Creative Writing; Alessandra Saluti '16, Political Science/French Cultural Studies

ADVISOR: *Flavia Laviosa, Italian Studies*

When you read the final product of your favorite magazine, award-winning literary magazine, or the best academic journal in your field, do you stop to think about who and what made it digestible and why it's your favorite? *The Journal of Italian Cinema and Media Studies*, published by Intellect (UK) and co-sponsored by Wellesley College, is a "fully peer-reviewed English language journal, which explores Italian cinema and media as sites of crossing, allowing critical discussion of the work of filmmakers, artists in the film industry, and media professionals." A lot more than articles on renowned film directors and leading media professionals goes into the production of an academic journal. Gabrielle has worked on the journal for the past two years, and Alessandra joined in 2015, both as editorial assistants to principal editor and beloved Italian professor, Professoressa Laviosa. When an article is sent to us in Italian, Alessandra translates it from Italian into readable and idiomatically accurate English. Gabrielle reads articles, copyedits for grammar and spelling, and close reads for diction, concepts, and organization. It is a rewarding process to be students invested in language and culture and to be able to insert our opinions and education directly into a prestigious journal and see that our hard work is recognized and respected. We want to share with Wellesley the inner workings of a small yet mighty editorial team and how we make what you read enjoyable through

a PowerPoint and a dynamic talk with examples of markups.

Lost in Spain, Found in Translation: Vicente Aleixandre (Nobel Prize in Literature, 1977) in the English-Speaking World

Nicole A. Olichney '16, Spanish/Psychology
ADVISOR: *Elena Gascon-Vera, Spanish*

My thesis, a translation of a book of poems written by the Spanish Nobel laureate Vicente Aleixandre (Seville, 1898-1984), has taken me from the dusty shelves in the back of Clapp Library to Spain, where I spent my winter break seeking to explore the poet's world. Although Aleixandre is considered one of Spain's most ingenious 20th-century poets, very few of his books have been translated into English, and in the U.S., his work is largely unknown. When completed, my translation of *Espadas como labios* (1932, *Swords Like Lips*) will be the first attempt to bring the book to English-speaking readers. Today, I will share some of my experiences delving into the world of translation and tell stories of my time traveling through Andalucía and Madrid in search of scholars, all with the hopes of convincing you that translation is not mere desk work but, rather, a wild adventure.

Spaces of Wonder

Jayne Yan '16, Art Studio
ADVISOR: *Andrew Mowbray, Art*

Nature often evokes a response of wonder within humans. These ideals have impacted history, writing, art, and philosophy. The connection between the tangible and the intangible is fascinating to me. What about our physical environment causes us to think, feel, and change in particular ways? This series of work explores the aspects of landscapes and questions if the details can instill a similar experience as the overall view.

Establishing a Voice: Attempts to Be Heard (Short Talks)
SCI-377

Beyond Boobtube: From NBC to Google

Sarah F. Bailin '16, Computer Science/Cinema and Media Studies; Tara Gupta '16, Media Arts and Sciences

ADVISOR: *David Olsen, Art*

WCTV's *Boobtube* is Wellesley's best and only satire news show. In honor of its four-year anniversary, we, the founding E-board

and former presidents, would like to present what *Boobtube* has taught us about the telecommunications industry, social media, leadership, and technology. The news is now a crossmedia, crossdevice, democratized medium at the mercy of Big Data, constantly changing trends, and new technology. Our leadership in *Boobtube* helped us to get internships at NBC and Google; and in turn we were able to apply the knowledge we gained from these big companies to bring *Boobtube* into this new media landscape. We would like to share our insights with the Wellesley community.

El significado de su salud: Social Determinants of Health, Public Policy, and Mexican-Born Women in Chicago

Nikita U. Saladi '16, Neuroscience/Women's and Gender Studies

ADVISOR: *Charlene Galarneau, Women's and Gender Studies*

According to the World Health Organization, social determinants of health are the "conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life." To attain better health outcomes, such determinants and the public policies that shape them must be considered. In my research, I attempt to answer two questions. How do social determinants of health such as socioeconomic status, place, and access to health care affect the health of Mexican-born women in Chicago? Furthermore, how do social policies incorporate such determinants in order to improve the health of these women? In exploring these questions, I draw upon existing literatures and my interviews with 10 Mexican-born women in Chicago. These sources illustrate the unique constellation of social determinants of health that affect these women and could inform more effective public policies.

Rory Gilmore: The Fictional Embodiment of Problematic Feminism
Kathryn (Kate) S. Johnson '16, Cinema and Media Studies

ADVISOR: *Winifred Wood, Writing Program*

Gilmore Girls, which ran from 2000 to 2007, found renewed popularity in the past year with its wide release on the video-streaming service Netflix. Today, just as when it was first released, viewers revel in the so-called feminist content of the show. With a storyline centered around two independent-

minded women in an unconventional mother-daughter relationship, the show was a fine product of pop culture that created a widespread notion of what it means to be a feminist. Viewing Rory Gilmore's character with a critical eye, I make the argument that *Gilmore Girls* promotes a palatable version of feminism while convincing its viewers they are watching radical feminist content. Watering down the public's perception of what it means to be feminist could potentially silence a population who, in today's political atmosphere, is in desperate need to be heard.

Heard: The Gendered Racializations of Muslim Americans in the 21st Century

Ananya M. Ghemawat '17, *Political Science*
ADVISOR: Jennifer Musto, *Women's and Gender Studies*

Since September 11th, 2001, Muslim Americans have become a visible minority in the United States. Since that time, they have been racialized into one homogeneous group, but the way in which racialization occurs has been specifically constructed on the basis of gender. The effects of gendered racialization manifest in a variety of realms, including political rhetoric, discussions around national security, discussions around Western cultural values, and how citizenship is constructed within the United States. This presentation considers the history of racialization in the United States, how Muslim Americans have been racialized on the basis of their religion, how that racialization differs on the basis of gender, and considers the implications of these diverse forms of racialization.

Music to My Ears (Short Talks) JAC-AUD

Old-Time: Toe-Tapping Dance Music and Race in the Music Industry

Fiona M. Boyd '16, *French/Music*
ADVISOR: Kariann Goldschmitt, *Music*

With its up-tempo ironic humor, insistent rhythms, and penetrating vocals, old-time music is one of America's most lively and uplifting musical genres. A genre of social dance music originating in the American South that blends African and European influences, old-time presents its listeners with some of the most important issues of our time: race, gender, authenticity, and modernisation. The Carolina Chocolate Drops, an African-American old-time string band from North Carolina's Piedmont

region, challenges mainstream narratives of country music. By shedding light on African-American contributions to the genre, the band reveals the rich, complex, and interwoven history of old-time music, race, and the music industry in North Carolina and beyond. During the folk music revivals of the mid- to late-20th century, old-time music became popular in the North. Today, the most pressing issues facing the United States play themselves out in this turn-of-the-century toe-tapping dance music.

To Be Totally Free: Sofia Gubaidulina, Galina Ustvolskaya, and the Search for Spiritual Liberation in the Soviet Union

Kathleen R. Regovich '16, *Music*
ADVISOR: Gurminder Bhogal, *Music*

As female composers in the Soviet Union, Sofia Gubaidulina and Galina Ustvolskaya occupy a unique niche in 20th-century music history. A lack of access to the technical training required to develop compositional skills is often cited as a primary reason female composers struggled to reach the same prominence as their male colleagues. Living in an ostensibly egalitarian society, Gubaidulina and Ustvolskaya were treated as equal to their male counterparts and given greater access to education than many women in the West. This increased access to musical education represents an unprecedented experiment in classical music history. Both Gubaidulina and Ustvolskaya developed compositional styles that are neither traditional nor avant-garde but strikingly unique, and thus reflect a shared desire for musical independence and originality. In their search for a distinct compositional voice, these women were among the few composers who dared to write religious music in the atheist Soviet Union.

Science and Technology

Singing in the Brain: Neural Correlates of Learning and Memory in Songbirds (Panel Discussion)

SCI-270

Stela P. Petkova '16, *Neuroscience*;
Houda G. Khaled '16, *Biochemistry*;

Rie K. Maeda '16, *Neuroscience*; Leila T. Elabbady '16, *Neuroscience*
ADVISOR: Sharon Gobes, *Neuroscience*

Human speech is an exceptionally complex skill, developed through a process involving both auditory and vocal experience. Although speech is fundamental to our everyday lives, remarkably little is known about how the brain circuits associated with speech comprehension and production develop. Songbirds provide a unique model system for investigating these questions. Humans and zebra finches have analogous brain structures and share behavioral and developmental similarities in the acquisition of vocalizations. Young male zebra finches, like human infants, acquire their vocalizations through a process of imitation and trial-and-error learning. A specialized system of interconnected brain regions is thought to store the neural representation of song memory and is involved in producing the song the bird has learned. In the Gobes lab, we use functional magnetic resonance imaging (fMRI), electron microscopy, and immunocytochemical techniques to investigate the regional, cellular, and molecular underpinnings of song learning.

BacPack for New Frontiers: An Interactive Museum Exhibit for Synthetic Biology (On-Location Presentation)

SCI-104

Rachel S. Kwon '17, *Cognitive and Linguistic Sciences*; Vivien Chen '18, *Computer Science*;
Samuila (Sam) Y. Mincheva '17, *Computer Science*
ADVISOR: Orit Shaer, *Computer Science*

The Wellesley College Human Computer Interaction (HCI) Lab collaborated with Silicon Valley's Tech Museum of Innovation to create an interactive museum exhibit that teaches fundamental synthetic biology concepts. As part of the HCI Lab, we designed the digital component that will complement the wet lab experience of the exhibit to convey basic principles of synthetic biology and raise awareness of the excitement and complexity of the field. The premise of the exhibit is that museum visitors will take on the role of a scientist and engineer bacteria that can help explorers on scientific missions in extreme environments, including Mars, Antarctica, and the deep sea. Museum visitors will tinker with tangible representations of DNA in order to engineer helpful bacteria. As part of our research,

we went through several stages of the user-centered design process and prototyped our exhibit at the Tech Museum.

Small Organisms, Big Impact (Short Talks)

PNE-339

Initial Colonizers of the Plastisphere, a New Marine Ecosystem

Helena I. McMonagle '16, Biological Sciences
ADVISOR: Marianne Moore, Biological Sciences

The negative impacts that plastics have on organisms in the ocean such as marine mammals, sea turtles, seabirds, and fish that ingest plastic and become entangled in plastic are well documented. Less is known, however, about the potential for plastics to transport organisms that attach to this artificial substrate. Rafting organisms that become attached to plastics comprise a new community of life in the marine environment, known as the Plastisphere. These organisms include invasive species, potential pathogens, and microbes that are able to metabolize hydrocarbons. Our results revealed that early colonizers of the Plastisphere include a variety of bacteria (e.g., *Vibrio*, *Marinobacter hydrocarbonoclasticus*) that form biofilms and metabolize hydrocarbons. We also found that some of the early colonizers (e.g., *Pseudoalteromonas*, *Polaribacter*, *Tenacibaculum*) are present in much later stages of succession in the Plastisphere. This study offers the first glimpse of the early microbial colonizers of the Plastisphere in coastal and open ocean ecosystems.

Evaluating the Localization of Sid2p/Mob1p During Cytokinesis

Lois M. Kwon '16, Biological Sciences
ADVISOR: John Goss, Biological Sciences

Interphase nodes are collections of signaling proteins that play a critical role in regulating cell division. These nodes function to recruit protein kinases to the center of the cell that signal the onset of contractile ring constriction. Using *Schizosaccharomyces pombe*, or fission yeast, as a model organism, recent research has revealed two interphase node proteins, Blt1p and Gef2p, to be individually implicated in recruiting the Sid2p/Mob1p kinase complex to initiate ring constriction. However, the combined effects of the deletion of Blt1p and Gef2p still remain unclear. My thesis therefore aims to observe whether or not the deletion

of both proteins will result in an additive or redundant effect. Establishment of a “molecular clock” will enable us to directly compare the timing of the formation and constriction of the contractile ring across strains, and additional quantitative analysis will further reveal density levels of Sid2p/Mob1p kinase complex at the division plane.

Hybridization: Understanding the Invasive Impact of an Introduced Species on Endemic Species in the Galápagos Archipelago

Sarah J. Pangburn '16, Biological Sciences
ADVISOR: Andrea Sequeira, Biological Sciences

Introduced species threaten endemic species through competitive exclusion, niche displacement, introgression, predation, and hybridization. As a result of hybridization, endemic species can lose important genetic adaptations. Small island populations of endemic species are especially in danger of extinction due to hybridization. The Galapagos weevil system colonized the Galápagos Archipelago between 8.6 and 11.5 million years ago from continental Ecuador. However, genetic analyses indicate that *Galapaganus* h. howdenae was only just recently introduced to Santa Cruz Island via an accidental human-mediated introduction during the human colonization period (1832-1959). This introduced species could now threaten the status of endemic species on the island, *Galapagnus conwayensis* and *Galapaganus ashlocki*, by weakening their biological identity through interspecies hybridization. An analysis of nuclear and mitochondrial DNA was completed using the Isolation with Migration model in order to determine the occurrence of hybridization and possibly the extent of the impact of the introduction.

Observing the Microbial Community Dynamics of a Permafrost Thaw Ecosystem

Amelia R. McClure '16, Biological Sciences
ADVISOR: Vanja Klepac-Ceraj, Biological Sciences

Due to climate change, thawing permafrost may cause a release of stored carbon, which can increase concentrations of greenhouse gases in the atmosphere. Global warming has been most extreme at northern latitudes. In northern Sweden, warming already has impacted the ecosystems and communities that make up this area. To address how microbial community

is affected by the changing landscape, I collected longitudinal samples of roots and leaves of seven different plant species across three permafrost thaw zones and profiled the microbial communities using high throughput sequencing. The comparative analysis of the data will be used to answer questions about ecological succession and community formation in these permafrost environments, and to begin characterizing microorganisms involved in mediating carbon fluxes in wetland ecosystems. This study integrates with a larger project on how microbial systems respond to and contribute to global change. In my talk, I will explain the observed colonization patterns and their significance, and how these communities fit in a dynamic and vulnerable permafrost system.

A Bug's Life (Short Talks)

FND-128

Exploring the Role of the Hedgehog Signaling Pathway in the Tobacco Hornworm, *Manduca sexta*

Surisadai (Suri) Aquit '18, Undeclared
ADVISOR: Yuichiro Suzuki, Biological Sciences

The sesquiterpenoid lipid hormone called juvenile hormone (JH) plays a critical role in insect development, but very little is known about its interactions with patterning genes. In the tobacco hornworm, *Manduca sexta*, proliferative actions associated with metamorphosis are preceded by a decline in the levels of JH. This project tested the hypothesis that the proliferation of imaginal cells, which are stem cell-like, is controlled by the interaction between JH and the Hedgehog (Hh) signaling pathway. In situ hybridization was used to localize gene expression of Hh in imaginal cells. In vitro gene knockdown of Hh signaling components led to altered imaginal cell proliferation patterns. Because nutrients are essential for imaginal cell proliferation, Hh expression was analyzed in starved animals. In the absence of nutrients, Hh expression declined. These studies demonstrate that a link exists between imaginal cell proliferation and Hh signaling. Further studies are underway to establish the relationship between JH and Hh signaling

The Role of Vvl in Size Regulation in the Tobacco Hornworm, *Manduca sexta*

Victoria R. Wang '16, Biological Sciences

ADVISOR: Yuichiro Suzuki, Biological Sciences

Many organisms, including both vertebrates and invertebrates, undergo dramatic morphological and behavioral changes in their postembryonic stages in a process known as metamorphosis. In the tobacco hornworm, *Manduca sexta*, several size assessment points exist that contribute to the determination of the final body size. These size assessment points are linked with juvenile hormone (JH), which prevents precocious metamorphosis, and with ecdysone, which mediates molting and metamorphosis. Using quantitative polymerase chain reaction (PCR), my research demonstrates a critical role of the transcription factor Ventral veins lacking (Vvl) in body size regulation and in mediating JH and ecdysone signaling.

Two Paths Diverge: Exploring the Threshold Weight in *Manduca sexta*

Zhou Wang '16, Biological Sciences

ADVISOR: Yuichiro Suzuki, Biological Sciences

One of the most puzzling questions in developmental biology is how organisms know to grow to the correct size. Insect size is a key trait that has been linked to fecundity and survival, but mechanisms that regulate size sensing are poorly understood. *Manduca sexta*, a insect physiology model organism, has distinct size sensing points—the minimum viable weight (MVW), the critical weight (CW), and the threshold weight (TW)—that mark decisions in the course of insect development. *Manduca sexta* goes through five larval molts before progressing into the pupal stage, provided that it reaches a weight minimum known as the threshold weight; otherwise, a supernumerary larval stage develops. The research presented in this talk explores the effects of hypoxia and juvenile hormone (JH) on the threshold weight in *Manduca sexta*, and candidate proteins that might mediate the decision to progress to metamorphosis or recapitulate the larval stage.

Transcriptional Regulation of Ecdysteroid Biosynthesis Is Conserved Between Hemimetabolous and Holometabolous Insects

Prioty F. Sarwar '16, Biochemistry

ADVISOR: Yuichiro Suzuki, Biological Sciences

Hemimetabolous and holometabolous insects are insects that undergo incomplete and complete metamorphosis, respectively. Recent studies have shown that in holometabolous insects, Ventral veins lacking (Vvl), a POU domain transcription factor, regulates ecdysteroid biosynthesis to influence molting and metamorphosis. To determine the degree of conservation in the transcriptional control of the insect endocrine system, the expression of Vvl in the hemimetabolous insect *Oncopeltus fasciatus* was silenced by RNA interference. As a result, the nymphs failed to molt and eventually died. Vvl knockdown also led to reduced expression of the ecdysone response gene HR3. Injection of active ecdysone 20E into Vvl knockdown nymphs rescued the HR3 expression and the molting phenotype. Vvl knockdown also led to subsequent reduction in the levels of ecdysone biosynthesis genes. Therefore, the transcriptional regulation of ecdysteroid biosynthesis is conserved between hemimetabolous and holometabolous insects.

Applying the Liberal Arts to Critical Health Problems (Short Talks)

PNE-139

Synergistic Drug Combinations Targeting Leukemia

Emily S. Lee '16, Biochemistry

ADVISOR: Adam Matthews, Biochemistry

Leukemia is a cancer of the blood or bone marrow and results in high numbers of abnormal white blood cells in the body. The most common type of leukemia in children is acute lymphoblastic leukemia, where immature white blood cells grow rapidly in the blood and end up replacing normal white blood cells, which are responsible for fighting off foreign invaders in our bodies. This disease disproportionately affects children between the ages of two and three and is the second most fatal cancer in pediatric patients. Working in the Stegmaier pediatric oncology laboratory at Dana-Farber Cancer Institute, my thesis research has focused on designing a novel

drug combination using a cyclin-dependent kinase inhibitor together with one or two additional standard chemotherapy drugs that are used to treat leukemia. Going forward, our lab's goal is to propose a clinical trial based off of the successful drug combination that has been identified.

Problems Framing the Situation: Exploring the Relationship Between Nongovernmental Organizations and Donors in African HIV/AIDS Work

Margaretta C. Mitchell '18, Anthropology

ADVISOR: Susan Ellison, Anthropology

As advocates for global change, nongovernmental organizations (NGOs) work with both those who have and those who have not. Those who have are often asked to donate to NGOs, usually through promotional materials featuring powerful narratives, images of success, and reports offering quantifiable results. While NGOs face pressure to produce evidence of success that will justify continued funding, the effort to generate such data may preclude working on long-term, systemic issues. It may also lead NGOs to develop programs that respond more to donor trends rather than local demands. Using ethnographic work by anthropologists concerning the HIV/AIDS epidemic in Africa, I intend to show how the position occupied by NGOs creates a double bind and restricts their ability to perform necessary work. Additionally, I plan to discuss the implications of this double-bind relationship on NGO employees' and volunteers' sense of personal, local, and large-scale achievement in their endeavors.

Incidentally Identified Pediatric Pituitary Microadenomas: To Treat or Not to Treat? That Is the Question

Adrianne E. Lage '16, Spanish

ADVISOR: Adam Matthews, Biological Sciences

Over the past 30 years, improvements in diagnostic imaging techniques such as magnetic resonance imaging (MRI) and computerized tomography (CT) have led to an increase in the frequency of incidental findings, including masses in the pituitary gland. These masses, or pituitary adenomas, may cause overproduction of hormones or they may be benign, having no substantial effect on hormone levels. Using a retrospective study of children presenting with incidentally identified pituitary adenomas, we found that a quarter

of these children exhibited no functional or radiological changes over the duration of follow-up in their medical history. Therefore, we suggest that an incidentally identified pediatric pituitary microadenoma is more likely to be benign and nonfunctioning. As such, a clinical and symptomatic follow-up without aggressive radiological or hormonal testing may be appropriate in children with an incidentally identified pituitary microadenoma.

Air Pollution in Singapore: A Personalized Approach to Health

Meredith L. McCormack-Mager '16, Mathematics

ADVISOR: *Jonathan Tannenhauser, Mathematics*

Traffic emissions is the top cause of air pollution in Singapore, yet the city state uses only a few stationary sensors—which track primarily background pollution data—to measure air pollutant levels. I present analysis of an innovative approach to air pollution data collection implemented by researchers at MIT's SENSEable City Lab that instead tracks pollution experienced by individuals. Participants were given portable gas pollution sensors to record their location and surrounding pollutant levels as they walked about the city, giving a more localized picture of pollution across Singapore. In this talk, I compare the effectiveness of this personalized data collection strategy to the current municipal system, and propose ways in which this new information could be used to facilitate better health outcomes in megacities like Singapore.

Bio and Chem (Short Talks)

SCI-E111

Studying Drug-Receptor Interactions: Photolabeling Studies Related to Type II Diabetes

Erin C. Yang '16, Chemistry

ADVISOR: *David Haines, Chemistry*

Glucagon-like-peptide-1 (GLP-1) receptor (GLP-1R) is a pancreatic receptor and a target for Type II diabetes treatment. Although injection of GLP-1 leads to insulin release, its short half-life makes GLP-1 difficult to use as a drug. Like GLP-1, the small molecule T-0632 binds selectively to GLP-1R. Understanding the interactions between T-0632 and GLP-1R may provide insights into diabetes drug design. To study these interactions, we will create a library of T-0632 analogs possessing a reactive azide

(N3) group in a variety of locations. Upon photolysis, the azide will covalently bind to specific amino acids within GLP-1R, thereby allowing us to map the residues of GLP-1R that are in proximity to T-0632. We have focused on selectively iodinating the isoquinoline of T-0632, with iodine being a precursor to the azide. Our method allows for selectivity in labeling ligands in order to map their binding pockets in biological receptors.

Impacts of a High-Fat Diet on the Growth of Intestinal Stem Cells and Cellular Models

Cynthia F. Jung '17, Mathematics

ADVISOR: *Omer Yilmaz, Biological Sciences*

Intestinal cancer and this organ's microenvironment have previously been little understood. The intestines contain epithelial intestinal stem cells (ISCs), which self-renew and differentiate into various specialized cell types. ISCs alter their function in response to the nutritional state of their microenvironment, which initiates growth factors that maintain the ISCs. Our research focused on the high-fat diet's role on the growth of cancerous intestinal stem cells. Experiments involving both human and mouse ISCs have indicated that this diet induces tumorigenesis. Using mimics of this dietary condition and pathway targeting components, we investigated impacts on fatty acid metabolism in cancerous ISC cellular models using physiological and mechanistic analytical methods. In addition, we studied germline mutations in colon cancer to study the effect on colonic stem cells. Our findings are a step toward future clinical and patient-specific treatment.

Alternative Methods of Reductive Amination in the Synthesis of T-0632 Analogs in Order to Study Receptors Involved in Type II Diabetes

Emma K. Ambrogi '16, Chemistry

ADVISOR: *David Haines, Chemistry*

T-0632 is a small-molecule inverse agonist of the pancreatic receptor GLP-1R. In order to study the binding site of GLP-1R, a receptor of great interest in Type II diabetes research, we hope to conduct photoaffinity labeling studies of the receptor using T-0632. To achieve this, multiple isomers of azido-T-0632 are needed. In the synthesis of azido-T-0632, it is necessary to achieve reductive amination of an oxime without affecting aromatic

halogens. Catalytic hydrogenation, the standard method for reduction of oximes, cleanly removes aromatic iodide under the conditions necessary for oxime reduction, so an alternative reduction method is needed. This study examines the effectiveness of reductive amination of oximes using sodium borohydride and lithium aluminum hydride. The results of the oxime reduction studies will be presented, including a discussion of reduction selectivity of the reagents. Any viable reduction method must selectively reduce the intermediate, usually an oxime, without removing any aromatic iodides.

Investigating Blastema-Specific Factors in Limb Regeneration in the Flour Beetle, *Tribolium castaneum*

Ruth Seok '16, Biological Sciences

ADVISOR: *Yuichiro Suzuki, Biological Sciences*

Regeneration is characterized as a renewal process that restores lost body parts, organs, and tissues in the appropriate dimensions and size. In organisms that can regenerate limbs, a key step in regeneration is the de-differentiation of cells to form a blastema.

In this study, we sought to identify blastema-specific factors in the flour beetle, *Tribolium castaneum*. An RNA-seq analysis identified a POU domain transcription factor as a potential blastema factor. Findings show that upon gene silencing, regenerating limbs were notably smaller, most likely due to decreased duration of blastema maintenance. A GFP enhancer trap line indicated that the expression of this gene is upregulated during the blastema maintenance phase. Thus, the POU domain transcription factor appears to regulate the duration of the blastema stage to ultimately regulate limb size.

Social Sciences

What Do You Mean You Invented a Language? (Panel Discussion)

SCI-E211

Julia T. Springer '16, Cognitive and Linguistic Sciences; Inkyung Sul '16, Philosophy/Cognitive and Linguistic Sciences; Mollie R. Krawitz '17, Russian; Emily C. Orgias '16, Cognitive and Linguistic Sciences; Yoonyoung Choi '16, Philosophy/Cognitive and Linguistic Sciences;

Mackenzie Bruce '16, *Cognitive and Linguistic Sciences*; Celia Bourcy, *Language Assistant*
 ADVISOR: Angela Carpenter, *Cognitive and Linguistic Sciences*

While invented languages have been around for centuries, they have become more visible in recent years through movies and television shows such as *Avatar's* Na'vi and *Game of Thrones'* Dothraki, along with video games and other media. What does it take to invent a linguistically sound language? What does the process look like? Come along with the members of LING 315 as we share with you how we built our languages from the ground up, including how we formed the phonetic sounds, the words, the syntax, and the culture of our languages. We hope you will be inspired by the possibilities!

Perspectives From the Freedom Project I: Education for the 21st Century (Panel Discussion)

FND-225

Dominique Huang '19, *Undeclared*; Emma W. Lurie '19, *Undeclared*; Nicole (Nikki) C. Rodriguez '19, *Undeclared*
 ADVISOR: Thomas Cushman, *Sociology*; Joshua McCabe, *Sociology*

The Freedom Project is dedicated to exploring the concepts of freedom and liberty in all their manifestations. Education is an important institution that facilitates these essential conversations and discussions. During the 2015 Wintersession, we were inspired by Princeton professor Omar Wasow's lecture on charter schools and current innovations in integrating technology into the modern-day classroom. Despite an exponential increase in the rate of technological innovation, modern education looks almost the same as it did a century ago. Whereas technology has revolutionized the way we do business, conduct government, and interact with friends, it has had little effect on the way we educate the next generation of leaders. This panel examines American school systems and the integration of technology and suggests possibilities for harnessing technology in order to help students of all backgrounds maximize their full potential as free and equal citizens.

Thinking and Rethinking Economics (Short Talks)

SCI-396

No Guns Me, No Guns You: Strategic Moves in *Inglorious Basterds*

Kate M. Loftus '16, *Economics*; Shrutti Sitaram '16, *Economics*
 ADVISOR: Susan Skeath, *Economics*

Directed by Quentin Tarantino, the 2009 film *Inglorious Basterds* follows the fictional escapades of a band of Jewish-American soldiers during World War II. Its cinematic merits aside, the movie is a veritable treasure trove of game theoretic concepts at work. We analyze one notable scene that culminates in a standoff between a German soldier and an American officer with this in mind. Together with the audience, we will employ the tools of game theoretic analysis to explain how strategic moves, credibility, and information asymmetry can help us predict the eventual outcome of the standoff and perhaps even the fictional war itself.

Thinking Outside the Box: Evaluating the Efficacy of Ban the Box in Reducing Post-Prison Employment Barriers

Amy N. Wickett '16, *Economics*
 ADVISOR: Phillip Levine, *Economics*

My economics senior thesis examines the efficacy of Ban the Box, a policy that prohibits employers from asking about criminal history on initial job applications. This campaign aims to diminish employment barriers for those with criminal convictions by allowing them to be considered on the basis of their other merits before having to disclose a criminal history. Despite the intentions of this policy, it may lead to increased labor market discrimination, yielding negative unintended consequences. I will present my findings on the labor market and incarceration effects of the policy change and address the potential for unintended consequences. (Research supported by a Schiff Fellowship.)

Solidarity Economy Responses to Sex Trafficking

Marcelle-Gloria (Gloria) Samen '18, *Economics*
 ADVISOR: Julie Matthaei, *Economics*

Human trafficking is a criminal business that profits from enslaving people for sexual servitude and forced labor. According to the U.S. Department of Health and Human Services, it is the fastest-growing and second-largest criminal industry in

the world today (second only to drug trafficking, and tied with illegal arms). As a researcher for Professor Julie Matthaei's book *From Inequality to Solidarity*, I unpack how and why human trafficking exists and persists and ways that people and groups can use our economic agency to create meaningful change and join the fight against human trafficking.

The Role of Radical Economics Within the Palestinian Boycott, Disinvestment, and Sanctions (BDS) Movement

Lydia (Hans) D. Han '18, *Economics*
 ADVISOR: Julie Matthaei, *Economics*

How have radical economics and the concept of a solidarity economy played a role in Palestine's economic protest against the Israeli government's actions? In what ways do the goals of a solidarity economy—responsible consumption, humane investment, and the redistribution of power through economic strategy—play into the objectives of Palestine's global resistance? This presentation will examine the ways in which the actions of the Palestinian BDS National Committee have affected the Palestinians' international economic resistance strategy, specifically looking at the economic relationship between Palestine and Israel, and evaluating the economic efficacy of the BDS movement. This presentation will also look at the nuances of the controversies which surround the movement and its supporting groups, including the accusations that both sides have offered up in response to this growing global movement.

Building Families (Short Talks)

SCI-256

Tick-Tock Goes the Biological Clock: Wellesley College Seniors' Attitudes Toward Egg Freezing

Sabrina S. Zions '16, *Women's and Gender Studies*

ADVISOR: Rosanna Hertz, *Women's and Gender Studies*

In 2012, the American Society for Reproductive Medicine dropped the "experimental" label from elective egg freezing, signifying its acceptance of the reproductive technology. Two years later, Facebook and Apple announced that egg freezing would be included in their female employees' benefits. Today, groups like EggBanxx, whose slogan is "Smart Women Freeze," are marketing egg freezing as a way for women to silence their biological clock

and take control of their fertility future. Despite the procedure's growing popularity, there remains a dearth of information about egg freezing, and no studies have been conducted on potential and prospective egg freezers. In this presentation, I discuss the results of my survey of Wellesley College seniors about their attitudes toward egg freezing and whether or not they are related to a future work/family strategy. I will contextualize my findings and theorize about their implications for women who are mothers, professionals, and both.

The Mother's Dream—A Love Story for My People

So-yung Mott '16, Women's and Gender Studies
ADVISOR: *Rosanna Hertz, Women's and Gender Studies*

Doing the work on the ground to challenge oppressive structures is important. But what is just as important are the histories that we tell each other and tell ourselves. For my senior capstone project, I wrote a sci-fi play that centers and retells stories of the Korean war, division on the peninsula, and Korean adoption, by challenging dominant narratives rooted in a U.S. imperialistic understanding of history. Using science fiction, I create a decolonial, imaginary, rupturing space for alternative voices to come through. Written from the intersection of imagination and identity, sci-fi and theater, the story is rooted in my own experiences as a transracial, transnational adoptee, in the work of Korean unwed mothers, and in oral histories of adopted Coreans. My research and the culminating play are an act of truth telling, exploring the power of body and imagination in reclaiming histories, and uncovering that which we have been told to forget.

Why Do People Border Cross? Conceiving Children Through Gametes and Their Importance in Families

Jamie Yang '17, Mathematics
ADVISOR: *Rosanna Hertz, Women's and Gender Studies*

As many countries have restrictions on gamete donations and surrogate practices, border crossing for fertility treatments is rising. The poster will answer questions related to regulations and political attitudes by gender and citizenship: What are individuals' reasons and politics behind border crossing and fertility treatments? Prior to and after conception, how do the

individuals feel about using donors? How do parents think about genetics? The study data comes from online surveys sent in various languages between November 2014 and January 2015 to former patients of a clinic in Spain who conceived children in the last five years. While the typical explanation given for why people border cross to use gametes to conceive is financial, data on this small exploratory study show otherwise, revealing that people are border crossing because fertility treatments did not work in their own countries, because they wanted an anonymous donor, or because donor eggs and embryos were not allowed in their countries of citizenship. In addition, individuals border crossed despite contradictory personal feelings about donor use and reproductive regulation. Respondents suggest that the meaning of genes varies by country. In conclusion, border crossing may not be as simple as it seems. While the respondents who border crossed place a lot of importance on genes, many of them are against expanding reproductive liberty and are against disclosing genetic information to their children. Additional conclusions are yet to be determined.

Making Babies: Reproductive Biomedicine, Gray Markets, and the Internet

Jacqueline Elise '16, Women's and Gender Studies
ADVISOR: *Rosanna Hertz, Women's and Gender Studies*

Reproductive biomedicine is a rapidly expanding field whose increasing commodification and institutionalization have led to the establishment of numerous semi- or unregulated markets facilitated by networked and communication technologies. Using the kidney market as a reference point, I examine the gray market interactions and legalities revolving around the selling and purchasing of eggs, gametes, embryos, fertility medication, and sperm. Working within a neoliberal capitalist framework, I explore the kinship bonds formed between participants in reproductive biomedicine gray markets, as well as the gendered, racialized, and classed dimensions of the biofertility industrial complex. Finally, building off previous feminist scholarship of global care chains, I map out transnational reproductive biomedicine trails and discuss their implications in a rapidly globalizing world.

What Makes Each Mind and Brain Unique (Short Talks)

GRH-130

No Effect of Driving Experience on Individuals' Navigation Ability: Evidence from New Wellesley Navigation Test

Zirui (Sabrina) Cheng '16, Psychology/Economics
ADVISOR: *Jeremy Wilmer, Psychology*

Despite the fact that navigation abilities have been studied for decades, the cases of individual differences in navigation ability have not yet been systematically studied due to a lack of web-based test paradigms capable of testing sufficiently large samples of individuals. In this study, we develop a novel, web-based navigation test, the Wellesley Navigation Test (WNT). We then test 218 participants via Amazon's Mechanical Turk to investigate the potential impact of individuals, driving experiences on their navigation abilities, as well as the interaction effect of gender and navigation strategies on navigation abilities. We did not find any significant correlation between driving experience or driving skill and individuals, navigation ability. However, the result did suggest individuals who use cardinal direction to navigate tend to perform better in the WNT than those who use other navigation strategies.

Microexpression Decoding Ability Is Present in Untrained Participants: Above-Chance Performance Seen on Novel Task

Blair K. Daniel '16, Neuroscience; Sara Rama '16, Neuroscience
ADVISOR: *Jeremy Wilmer, Psychology*

Microexpressions are a poorly understood type of facial expression, into which very little research has been performed (Frank and Svetieva, 2015; Wang et al., 2015). Past research has found that, although microexpression decoding ability can be trained, without training, microexpression decoding ability does not rise above chance levels in the general population (Matsumoto and Hwang, 2011). As a part of our Research Methods class, we created the Microexpression Decoding Test (MDT). We will discuss the use of stimuli taken from the CASME II, and the class utilization of both student and 200+ Amazon Mechanical Turk participants. We found the MDT to be highly reliable, and to correlate with macroexpression decoding, as measured by

the RMET. We also found that performance on the MDT ranged up to three times above chance, with a mean performance approximately two times above chance.

Trustworthiness, Where Are You? Novel Test of Individual Differences in Where People Look to Gauge Trustworthiness

Minjung (Julia) Kim '16, Psychology; Courtney A. Lang '16, Neuroscience
ADVISOR: *Jeremy Wilmer, Psychology*

How do we gauge others' trustworthiness? So far, it is established in literature that how people rate trustworthiness varies, but the specific individual differences are poorly understood. The novel test, Localization of Trustworthiness Information (LOTI), asked participants to rate the trustworthiness and memorability of 20 faces as well as the upper and lower halves of those 20 faces, and then computed a measure of the degree to which people tend to use information from each half of the face to gauge trustworthiness. It was found that people look more toward the bottom half of the face for trustworthiness and more toward the top half for memorability. The measure was found to be reliable and valid. Using the Autism-spectrum Quotient (AQ) questionnaire, no relationship between the participants AQ and where they look to gauge trustworthiness was found. It was also found that gender, but not culture, influences where people look for trustworthiness.

Is the Color of That Apple Really Red? Investigating Individual Differences in the Effect of Color Memory on Perception

You-Min (Evelyn) Lee '16, Neuroscience
ADVISOR: *Jeremy Wilmer, Psychology*

Our visual system is intriguing in that it shifts our perception to fit our needs. It has been found that color memory modulates our perception of familiar objects. Utilizing Amazon's Mechanical Turk database, we have developed a reliable test to measure color memory. We created multiple trials to include images of varying hues and asked subjects to pick an achromatic image. We found that chosen images had hues that were shifted toward the direction of opponent color of objects. However, the shift effect was not shown in unfamiliar Korean traditional objects, indicating that the shift was indeed due to color memory. Here, we provide a foundation for future studies

on the connection between memory and visual system.

“ During the first session in the library about the history of Wellesley, I was fascinated by the presentation, which was excellent . . . ”

–Barbara Peterson Ruhlman '54

Humanities

Turning a New Leaf: An Introduction to Book Structures (Interactive Teaching Presentation)

Clapp Book Arts Lab

Isabella R. McDonald '17, Biological Sciences; Lisa V. Rodon '16, Art Studio/Media Arts and Sciences; Alison N. Savage '17, Media Arts and Sciences

ADVISOR: *Katherine Ruffin, Library Collections*

Join us in Clapp Library's Book Arts Lab for an introduction to developing handmade book structures. Materials and short demonstrations will be provided so that you can leave with an accordion fold, drumleaf or leporello, or five-hole stitched book of your own creation. These basic structures serve as a jumping-off point to further explore typography, printmaking, and book arts from a general perspective. Fill these books with whatever you wish: keep track of your to-do lists, fill them with sketches, write poetry or song lyrics, and more.

Where the Visual Meets the Sonic (Panel Discussion)

JAC-AUD

Stephanie P. Villafane '17, Chemistry; Jacqueline Elise '16, Women's and Gender Studies
ADVISOR: *Jenny Johnson, Music*

In this 70-minute panel, Stephanie Villafane and Jacqueline Elise will present projects related to interactions between sound and visual art. Villafane's presentation is a historical research paper on how visual artists, composers, and writers have influenced each other's works in differing media in both the late 19th and early 20th centuries, while Elise's project is a multimedia art installation incorporating both sound and visual media, including lighting, video, and interactive audio-triggering objects. While Villafane investigates the biographical and emotional relationships that underlie innovations between artists in different media, Elise's project reveals how fragmented memories and trauma can inspire art that incorporates multisensory elements. This panel will end with a discussion between both presenters on how Villafane's historical research intersects with Elise's creative work.

That Time of the Month: A Crowdsourced Zine on Menstruation and Identity (Exhibition)

SCI-274

Hanna G. Day-Tenerowicz '16, Women's and Gender Studies

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

Menstruation is a phenomenon fraught with overlapping meanings far more complex than simply the ability to conceive. Further complicating the symbology of menstruation is that it is rarely given mention; it is all too often regarded as disgusting and taboo, and as a result it is hidden away, out of the sight of fine arts and literature. The conspicuous absence of menstruation in literature piqued my interest, inspiring me to take on an investigatory independent study, but its elusiveness also proved to be a research roadblock. In response to this challenge, I decided that the most effective way to gather qualitative data on my topic was to create a primary text in the form of a zine. The zine, titled *That Time of the Month*, takes a calendar format due to the monthly cyclicity of traditional menstruation, and features submissions from Wellesley students. In making menstruation stories more visible, *That Time of the Month* seeks to contribute to the crafting of a more open and accepting culture around menstruation, as well as to investigate the connections between menstruation, gender, and identity.

Milano and Its Neighbors (Exhibition)

Davis Museum Entrance

Xiaorong (Sharon) Liu '17, Mathematics/ Art History; Virginia G. White '17, Classical Civilization; Ningyi Xi '17, Art History

ADVISOR: *Elizabeth Gardner, Davis Museum*

We live on a campus 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 *Milano*, the newly installed sculpture near the entrance of the museum, and its neighboring plants, 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.)

Media and Marginalization (Short Talks)

GRH-330

Écrire l'occupation: Representations of the Enemy in Three Works by Irène Némirovsky

Chandler M. Abshire '16, French

ADVISOR: *Venita Datta, French*

During World War II, France's rapid and unexpected defeat was followed by the German occupation of the northern half of the country. The Occupation (1940-1944) was marked not only by the daily stress of living alongside the German enemy, but also by a civil war within the French population. Existing critical works on Irène Némirovsky, a Russian-Jewish author writing in France during the Occupation, focus on fitting her wartime writing into a certain political and ideological framework; however, these attempts to label Némirovsky's political stance are far too reductive. In my thesis, I have taken the opposite approach, seeking to bring to light the complexity of Némirovsky's ambivalent representation of Germans, as well as of French elites and women, to show that rather than producing unequivocal propaganda works, Némirovsky employs these external and internal enemies to French national solidarity in order to consider timeless ethical questions regarding individual responsibility and collective identity.

From Mammy to Rudy: Representations of Black Women in Mass Media

Gabrielle S. Chapman '17, Economics

ADVISOR: *Ophera Davis, Africana Studies*

For decades, mass media has presented skewed images of black women that rarely capture their respective complexities. These tropes are transferred through media, which constructs socially acceptable images and heavily influences cross-cultural understandings. In the media, the predominant black female tropes have been the Mammy, Jezebel, and Sapphire, each of which have negative effects on the black woman's psyche through her internalization of these images. In response, directors and actresses, many of whom are black, have deconstructed and proposed new, more compelling representations of black womanhood. Through the analysis of popular black female tropes and the current mass media representation of black women, I argue that a new representation of black

womanhood has developed that encompasses previous tropes yet differentiates itself by exhibiting a multidimensional woman with humanizing, rather than degrading, traits.

Resistance, Culture, and Community (Short Talks)

FND-128

iEn voz alta!: Resistance in the Cuban Nueva Trova

Michelle A. Berrey DS, Latin American Studies

ADVISOR: *Lawrence Rosenwald, English*

This presentation will explore the music of Silvio Rodríguez and Pablo Milanés, two founders of Cuban *nueva trova* music. Learn about the roots of *trova*, how it developed into "*nueva*" *trova*, and its role in the *nueva canción* movement that took place all across Latin America during the 1960s and 1970s. We will ask some unpopular questions about the intention of this post-Cuban Revolution genre of the protest song movement: Are the singers resisting U.S. domination? Do the lyrics contain subversive messages about the Cuban Revolution? How do we read these singers' responses to their condition in Communist Cuba?

African Presence at Wellesley College

Cindy E. Coffee '16, Architecture

ADVISOR: *Filomina Steady, Africana Studies*

Beginning with the decolonization of the African continent, Wellesley College took an interest in having students representing sub-Saharan Africa on its campus. First came the two-day February 1960 Symposium on Africa, then the first student admitted in 1960/61. Come see and hear what Africans, and the word *Africa*, meant to the campus back then and how it has evolved to what we see today. This original research includes an audio recording of the first sub-Saharan Wellesley graduate (Class of 1963) after a face-to-face meeting in January 2016, images, and news articles uncovered from Special Collections and online, as well as quotes from e-mail correspondence.

A Continual Evolution: The Reform of France's "Politique de la Ville" as an Urban Peace-Building Mechanism in the Suburbs of Paris

Pauline O. Day '16, Individual-Peace and Justice Studies

ADVISOR: *Lawrence Rosenwald, English*

For four months, the parallel between Chicago and Paris, two seemingly incomparable cities, gnawed at me while I

travelled to and from my internship at the city hall of Pantin, a neighboring suburb of Paris. I was placed in the Department of Politique de la Ville, a national funding mechanism dedicated to low-income neighborhoods in France during its call to reform. At its best, the mechanism is quite dynamic, increasing the resources and mutual trust between residents and government; at its worst, it is highly ineffective, financially wasteful, and ignorant of the specific needs of communities. While most research students spend months piled over books, I spent months sitting in and listening to focus groups, community presentations, and internal department debates, a fly on the many walls of French bureaucracy and law making. This research experience played an important role in cementing my interest in urban conflict and, more importantly, was essential in my understanding of the give and take between local government and community organizing. I aim to answer: Can the French hierarchical mode of governance accommodate new voices, and community actors, in its decision making? I decided to continue to explore this mechanism for my senior thesis, and returned to Paris this winter as a Daniels Fellow to conduct interviews and research in Pantin.

Art Through the Ages (Short Talks)

JAC-450

Ladies in the Bath: Nude Portraiture in the French Renaissance

Sophie A. Kerwin '16, Art History/English
ADVISOR: *Margaret Carroll, Art*

The artists of the School of Fontainebleau produced a striking group of portraits depicting nude women bathing or at their toilette. These paintings are exceptional for the period in that nudity was primarily reserved for allegorical or mythological contexts. The identity of the women depicted in these mysterious paintings has been a continual source of fascination for scholars, who have suggested an array of royal mistresses and queens. Beyond the women's precise identities, however, the paintings elicit many questions; their meaning, their function, and what they reveal to us about women of the period all remain to be explored. The paintings are examined in light of contemporary conceptions of bathing and bathing practices

revealed to us through plans and accounts of François I's renowned *appartement des bains* at the Chateau de Fontainebleau, prints and illustrations of bathing scenes, and prescriptive texts on bathing. (Research supported by a Schiff Fellowship.)

Beyond the Loom: Examining the Relationship Among Gender, Textiles, and Architecture at the Bauhaus

Orli C. Hakanoglu '16, Architecture
ADVISOR: *Patricia Berman, Art*

Established in 1919, the Bauhaus school of art, design, and architecture, known for its radical social and artistic experimentation, was arguably the most influential institution on modern design. Although women were accepted into the school, the agenda of equality did not reach so far as to fully include them in the curriculum. Women were redirected from the study of architecture to the weaving workshop. Consequently, modern textiles—from movie screens to light-reflecting and sound-absorbing fabric—were radically transformed by ambitious women. Prompted by the discrepancy between the school's mission and its lack of gender equality, my interdisciplinary thesis examines the ways in which women reclaimed their place at the school by revolutionizing their medium. I specifically consider the work and writing of Anni Albers within the framework of gender politics of the Bauhaus. The studio portion of my thesis imagines the spatial potential of the textiles woven by women who were denied the opportunity to work in architecture. (Research supported by a Schiff Fellowship.)

Science and Technology

Sparking Mathematical Excitement Through Games and Puzzles (Interactive Teaching Presentation)

SCI-392

Lyubov Kapko '18, Mathematics; Paige N. Cheatham '18, Undeclared
ADVISOR: *Karen Lange, Mathematics*

Our research focuses on how to explain mathematical concepts and develop problem-solving skills through the use of games and mind-teasers. This year we developed math activities for a variety of audiences, including students at Hardy Elementary School, Wellesley College,

and Science Club for Girls. The questions we consider include how to translate mathematical ideas into puzzles and games for different ages, how to create an environment conducive to exploration, and how to overcome some common challenges when running activities. We discuss what we think makes math activities successful and why. Best of all, the audience will witness our results in action by taking part in an interactive math activity.

Building New Structures With Old DNA (Short Talks)

FND-317

Studying DNA Hairpin Stability and Octahedral Rhodium Complex Binding

Sally R. Ruderman '16, Biochemistry
ADVISOR: *Megan Nunez, Chemistry*

The stability of the double helix of our DNA is integral to accurate transcription and translation. However, if mismatches wobble pairs or lesions in the DNA disrupt the typical Watson-Crick base pairings, the stability and integrity of the entire molecule plummets. Although structurally quite different from normal double-stranded DNA, palindromic, single-stranded DNA hairpins are a remarkably accurate model to study DNA stability. Pulling on these hairpins with optical tweezers reveals how much force is needed to “unzip” the DNA, whether perfectly matched or with mistakes. Some rhodium-based octahedral complexes are DNA intercalators, molecules that bind between the DNA bases, and are hypothesized to stabilize any mistakes or lesions in the DNA. For my thesis, I am using DNA hairpins in conjunction with two rhodium complexes, $[\text{Rh}(\text{bpy})_2(\text{chrysi})]+3$ and $[\text{Rh}(\text{bpy})_2(\text{phi})]+3$, both of which are DNA intercalators. I am investigating whether and how these complexes bind, stabilize, and interact with the DNA hairpins.

Synthetic Finite State Machines in Living Cells

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

Finite state machines (FSMs) are networks with a finite number of states and set paths for moving between those states. Here I demonstrate a scalable platform for building FSMs using unidirectional integrases. I validate the framework by constructing three-input, 16-state FSMs with order

dependence and multi-input/multi-output control of gene expression in *E. coli*. Furthermore, I show that this platform can be expanded for use in mammalian cells and for recording information in the gut of *M. musculus*. In the future, this platform will enable more in-depth recording of environmental conditions in vivo and allow for programming complex gene expression patterns.

Analyzing the Nature of DNA G-Quadruplex Formation in the *Bdellovibrio bacteriovorus* Genome

Hikari Murayama '16, *Individual-Chemical Physics*; Sally P. Shephardson-Fungairiño '16, *Chemistry*

ADVISOR: Megan Nunez, *Chemistry*

Deoxyribonucleic acid is often thought to be in its double helical form, where the bases are interacting by Watson-Crick hydrogen bonding. However, there is a tendency for strands with an abundance of guanines to form G-quadruplexes via Hoogsteen hydrogen bonds. The structures have the power to inhibit telomerase activity, replication, and transcription. The Nunez lab has been exploring the formation of these folded structures in the *Bdellovibrio bacteriovorus* genome, using parameters such as temperature, time, salt, and crowding agents, and using various DNA sequences analyzed by such techniques as UV-VIS spectroscopy, CD spectrometry, and quadruplex specific porphyrin fluorescence.

Transportation and Signal Propagation

PNE-339

A Study of Longevity in *Caenorhabditis elegans* Glutamate Transporter Mutants

Heinkel Y. Cantu Oliveros '18, *Neuroscience*

ADVISOR: Deborah Bauer, *Neuroscience*

Although some signaling systems regulating aging in *Caenorhabditis elegans* have been identified, the role of glutamate (Glu), the most prominent excitatory neurotransmitter in our brain, remains largely unknown. Dietary restriction has been demonstrated to extend the life of multiple species, including *Caenorhabditis elegans*. Recent studies have found a molecular pathway where α -ketoglutarate (α -KG), a Krebs cycle intermediate, prolongs the lifespan of *Caenorhabditis elegans* in dietary restriction. In this model organism, Glu intervenes in two different set of reactions that produce α -KG, but whether Glu transport affects

longevity in *Caenorhabditis elegans* has not been investigated yet. An ongoing project in the Bauer lab explores the aging phenotype of *Caenorhabditis elegans* glutamate transporter mutants with respect to wild type to understand whether a deficiency in Glu transport interferes with lifespan.

Characterizing the Adhesive Properties of Cytokine Receptor IL17Ra During Brain Development

Ashley E. Park '16, *Neuroscience*

ADVISOR: Adam Matthews, *Biological Sciences*

Autism spectrum disorder (ASD) is a common neurodevelopmental disorder characterized by deficits in social behavior, communication, and characteristic repetitive behaviors. Studies have revealed that environmental factors, such as maternal immune activation (MIA) during pregnancy, play significant roles in the pathogenesis of ASD, especially in individuals with specific genetic backgrounds. This observation has been modeled in rodents to better understand the neuronal basis of MIA-induced ASD phenotypes. The Choi lab at MIT has recently discovered that a specific immune molecule named cytokine interleukin (IL)-17a is necessary in female mice to induce ASD-like phenotypes in the MIA offspring. For my thesis project, I have been characterizing the cell adhesive properties of the cell-surface receptor IL17Ra, which IL-17a binds to, and determining the role this receptor plays during fetal development. Elucidating the role of IL17Ra could lead to more definitive diagnostic tools and preventative methods of ASD, both of which are critically lacking.

Investigating the Interaction Between the Cardiac Potassium Channels hERG and KvLQT1

Heidi Wade '16, *Biochemistry*

ADVISOR: Louise Darling, *Biological Sciences*

The heartbeat is triggered by the collective electrical activity of individual heart cells called cardiomyocytes. The electrical activity of cardiomyocytes is due to the influx of sodium and calcium ions into cardiomyocytes and the efflux of potassium ions out of cardiomyocytes. Aberrations in the flow of ions into and out of cardiomyocytes can underlie a variety of arrhythmias and diseases. While there is only a single sodium channel protein that is responsible for the influx of sodium ions into cardiomyocytes, there are more

than five different potassium channel proteins that are responsible for the efflux of potassium from cardiomyocytes. Historically, it has been assumed that the excess of potassium currents were acting as a repolarization reserve, meaning if there was a block or a mutation in one potassium channel that rendered it to have reduced or nonfunction, then the other potassium channels could compensate for this through increased activity. However, the idea that excess potassium channels are acting as a repolarization reserve has been challenged by research showing that loss of function in one kind of potassium channel, hERG, resulted in the reduced function of another potassium channel protein, KvLQT1, and vice versa. Subsequent studies showed that hERG and KvLQT1 physically interact with each other, but the exact nature of their interaction remains unknown. I am interested in further elucidating the nature of interaction between hERG and KvLQT1 measuring acceptor photobleach FRET (apFRET) between fluorescently labeled hERG and KvLQT1 proteins. Specifically, I am addressing whether interchanging the fluorophores that hERG and KvLQT1 are tagged with affects the FRET efficiency between the two proteins. In addition, I am examining whether the concatenation of minK (protein) to KvLQT1, so the construct can produce full IKs (potassium current) current seen in an intact cardiomyocyte, alters the interaction between KvLQT1 and hERG. Answering fundamental questions about how the various ion channel proteins interact in both normal and diseased cardiomyocytes will enhance our understanding about the molecular basis of many complex cardiac diseases.

Social Sciences

Digging Into the Past: A Holocaust Education and Service Trip to Poland (Panel Discussion)

SCI-277

Cecilia F. Nowell '16, *Comparative Literature/Political Science*; Chelsea L. Roston '19, *Undeclared*; Roza Trilesskaya '16, *Economics*; Arianna G. Regalado '18, *Undeclared*;

Delanie N. Goerig '16, Anthropology; Apoorva Arora '16, Economics

ADVISOR: *Shoshana Gibbor, Wellesley College Hillel, Birthright*

This past November, six Wellesley students were a part of a group that traveled to Poland with Combined Jewish Philanthropies of Greater Boston and the nonprofit From the Depths. The trip sought to bring attention to the misuse of Jewish headstones, *matzevas*, during and after World War II. Students participated in educational tours focused around the Holocaust, performed service work involving restoring Jewish gravestones, visited Auschwitz, and met a Holocaust survivor. As a part of the program, students engaged with various perspectives on the Holocaust—including Jews, non-Jews, Americans, international students, and Polish people. Our goal is to highlight how the experience can be incorporated into the larger academic curriculum at Wellesley and why it is vitally important that we continue to educate ourselves and others on the history of genocides.

Ecuadorian Access to Formal and Informal Health Care in Massachusetts (Panel Discussion)

SCI-396

Nina T. McKee '16, Political Science; Ana K. Martinez '17, Economics; Loren J. Lock '16, Women's and Gender Studies; Charlotte E. Kaufman '18, Individual-Peace and Justice Studies; Suma S. Cheru '18, Anthropology; Alondra Navarro '18, Undeclared

ADVISOR: *Peggy Levitt, Sociology*

Over the last 30 years, the U.S. has taken in a large influx of Ecuadorian migrants, and Massachusetts is currently one of the top five destinations for this population. Through interviews with individuals, families, and NGOs providing resettlement services, our group has sought to understand the resource networks for access to health care for Ecuadorian migrants. This presentation will be a discussion of the formal and informal networks to which migrants have access upon arriving to, and establishing themselves in, Massachusetts. We will present a background of the history of Ecuadorian migrants in the United States and Massachusetts, explain our research methodology, discuss our general findings on migrant access to health care, and include anecdotal experiences of our interviewees. We most hope to use this Ruhlman to

dialogue about immigration as a relevant and contemporary issue in the United States, and to share our findings on the Ecuadorian migrant experience.

Perspectives From the Freedom Project II: Race, Place, and Opportunity—Implications for Freedom and Social Mobility (Panel Discussion)

FND-225

Fatoumata Bah '18, Biochemistry/Spanish; Vipasana Karkee '19, Undeclared; Emily N. Moss '19, Undeclared

ADVISOR: *Thomas Cushman, Sociology; Joshua McCabe, Sociology*

The Freedom Project Wintersession program allowed Adam Smith Fellows to explore the role of freedom with respect to social, political, and economic issues. A free society requires a minimal level of equality of opportunity so that individuals have the liberty to chart their own life course. In this panel discussion, we will consider the confluence of race, place, and opportunity and their implications for social mobility within the United States and in comparative perspective. Karkee examines the emergence of social and economic order within the chaos of refugee camps. Bah explores the issue of mass incarceration and the disproportionate number of people of color in the American prison system. Moss examines the consequences when high-income and predominantly white communities adopt more restrictive zoning regulations in metropolitan areas. How do these exclusionary land-use policies exacerbate racial segregation and act as barriers to social mobility?

Model Behavior: Economic Models of Household and Firm Behavior (Panel Discussion)

SCI-E211

Hero M. Ashman '16, Economics; Liang Zhang '16, Economics/Mathematics; Hui (Sabrina) Li '16, Economics/Mathematics; Wing Yan (Sharon) Shiao '16, Economics/Mathematics

ADVISORS: *Robin McKnight, Economics; Akila Weerapana, Economics; Daniel Sichel, Economics; Seth Neumuller, Economics; Casey Rothchild, Economics*

Senior honors students from the Economics Department apply economic modeling to shed light on household financial decisions and financial outcomes, as well as the

forces shaping the markets in which those households participate. Liang Zhang '16 examines the development of prices for cloud computing services. Sharon Shiao '16 models the insurance market under monopoly when an individual's risk is dependent on the insurance contract offered and on the average risk in the market. Hui Li '16 investigates optimal annuitization of retirement wealth in the presence of different levels of financial sophistication among consumers and the risk of default by insurers. Using data on racial differences in income, housing, and mortality, Hero Ashman '16 builds a model that simulates the highly unequal racial wealth distribution across households in the United States.

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

SCI-104

Adele M. Clifford '16, Biological Sciences; Jean Sol Kim '16, Psychology; Carolyn A. Chelius '16, Economics/Environmental Studies; Christina I. Phelps '17, Sociology

ADVISOR: *David Lindauer, Economics*

Adele Clifford: Evolution is a widely used term, taught in schools and explored in academia. Much of our focus on evolution revolves around natural selection, a focus that has led us to believe that any beneficial trait has the possibility of evolving over time within a population. My interview with Wellesley professor Emily Buchholtz considered why this perspective is incomplete: It overlooks the developmental constraints to evolution, constraints that limit the traits generated in viable individuals prior to natural selection ever taking place. By identifying organisms that have managed to break the constraints and studying at both a molecular and morphological level the consequences of their divergence, we learn more about the developmental constraints themselves, as well as evolution and development as a whole.

Jean Sol Kim: Through my participation in the Calderwood Seminar: Psychology in the Public Interest, I had the opportunity to interview Ellen Winner, a developmental psychologist whose research explores developmental psychology of the arts, arts education, giftedness, and transfer of learning from the arts. She is professor and chair of the Department of Psychology at

Boston College and directs the Arts and Mind Lab, which investigates cognition in the arts in typical and gifted children. During the interview, I discussed with Professor Winner her recent research on humans' ability to detect intentionality in abstract art, her work on gifted children, and the important benefits of arts education.

Carolyn Chelius: Larry Gilbertson, a molecular biologist, heads the Cambridge team of Monsanto, where he focuses on protein optimization; specifically, on improving insect-resistant genetically modified plants. Gilbertson and I discussed the day-to-day aspects of his job (he led me through a tour of his lab, where he clones and edits genes) and also talked about more controversial aspects of GMOs and about Monsanto as a company. He shared his views on food safety, GMO labeling, and patenting. Gilbertson believes firmly in the work that he does, and offers an interesting human perspective on the fourth-most hated company in the United States.

Christina Phelps: Homophobia in the African-American community has long been a taboo topic. Questions such as why homophobia pervades the African-American community, and how this ideology can be changed, are seldom addressed. But Professor Saida Grundy, of the Sociology and African American Studies departments at Boston University, is looking to answer these questions. Her work argues that homophobia is mired in Black America's larger, historical struggle for respectability and upward mobility. I had the opportunity to interview Professor Grundy about her investigation of homophobia on Morehouse College's campus, and discover how her research spurred her into a career in academia and of activism.

Inside the Mind and Life of the Child (Short Talks)

FND-120

The Effect of Iconicity Type on Preschoolers' Gesture Learning: A Role for Embodiment?

Jenny Chen '16, Psychology

ADVISOR: Jennie Pyers, Psychology

Adults readily use iconicity, the resemblance between a form and its referent, to attribute meaning to a representation. On the other hand, preschool children display more variability in their capacity to recognize

iconicity. Iconicity is not uniform: A symbol can iconically represent how a human interacts with the referent or the shape of the referent. This study investigates whether children learn various types of iconic symbols differently over the course of development. I hypothesize that children will learn handling gestures, which depict how an object is used (e.g., gesturing "brushing teeth" by pretending to hold a toothbrush), more easily than object gestures, in which the hand represents the referent (e.g., gesturing "brushing teeth" by extending the pointer finger out to represent the shape of a toothbrush). That is, children may be able to better learn gestures that mimic the use, rather than the shape, of the referent.

How Technology Shapes Children's Creativity: Differences in Preschoolers' Paper Versus iPad Drawings

Elizabeth M. Bilsborough '16, Psychology;

Frances G. Whiting '16, Psychology

ADVISOR: Jennie Pyers, Psychology

Especially in recent years, touchscreen technology has had a pervasive influence on children's lives, inhabiting their homes, their classrooms, and their play environments. For Research Methods in Developmental Psychology this past fall, we conducted research at the Child Study Center on whether the overall creativity of children's drawings differed significantly when generated using an iPad versus traditional media. We will be sharing our insights on additional factors we believe might influence children's creativity, such as their familiarity with touchscreen devices and reported level of enjoyment of the drawing activity. Based on our findings that the use of an iPad neither facilitated nor inhibited children's artistic creativity, we will discuss the possibility of touchscreen devices being used more widely across various domains of children's lives.

Stigma of Mental Illness in South Asian Cultures: Harmful Attitudes and Their Socialization Into Children

Tahani R. Chaudhry '16, Psychology

ADVISOR: Stephen Chen, Psychology

While stigma toward individuals with mental illness may be universal, its manifestations may differ across cultural contexts. Two types of stigma are particularly relevant to the South Asian population: onset responsibility,

stigma that attributes mental illness to individuals' own negligent behaviors; and courtesy stigma, the discrimination and social isolation experienced by family members of a person with mental illness. My research investigates how cultural values may influence the endorsement of onset responsibility and courtesy stigma. I hypothesized that participants from different ethno-cultural groups would vary in their cultural values, and that these values would be positively associated with courtesy stigma and negatively associated with onset responsibility. Furthermore, we explore stigmatizing attitudes endorsed by parents and qualitatively assess how parents explain mental illnesses to their children. We hypothesize that denial and supernatural explanations will be reflected in responses of South Asian parents, while emotional and biomedical explanations will be reflected in responses of European American parents.

"It's Not What You Say, It's How You Say It": The Role of Language in Children's Gesture Choices

Kristin J. Williams '16, Psychology

ADVISOR: Jennie Pyers, Psychology

Children's gestures are an important aspect of their language and cognitive development. In our current study, we investigated the development of preschool children's elicited gestures and how children's gestures may or may not change when they are asked to gesture about an action ("brushing teeth") or about an object ("toothbrush"). We hypothesized that verbs would elicit gesture productions that showed how the child would interact with an object (handling gestures), whereas nouns would elicit gestures that showed the shape of an object (object gestures). Preschool children (N=116) between the ages of 3 to 5 were randomly assigned to produce six gestures in response to either verbs or nouns. We will investigate whether gesture types varied across conditions and whether they varied over the course of development. We will discuss how children's gesture choices may reflect their semantic understanding of the words.

Intervention and Prevention (Short Talks)

GRH-130

Not Just a Nurse: Peace Work in Jerusalem's Hadassah Ein Kerem Hospital

*Jordan R. Hannink '16, Women's and Gender
Studies*

ADVISOR: *Rosanna Hertz, Women's and Gender
Studies*

This is an ethnographic study of Hadassah Hospital in Jerusalem. My thesis situates nursing in the Israeli context not solely as a calling but additionally as a political act. Caring for one's "enemy," in physical, psychological, and emotional terms, places nurses in the unique position of peace worker in addition to their professional tasks. The ability of women to fulfill this role is intrinsically linked to their own training as "mothers." Israeli nurses, cognizant of the ramifications of their multiple roles, employ "maternal thinking" (Ruddick 1989) in order to build relationships rooted in understanding. Building a relationship with their patients allows them to give the best medical care possible and is considered a crucial aspect of holistic nursing. These connections have the potential to delegitimize stereotypes and commonly held animosities toward the "Other" in a hotly contested conflict.

Developing a Depression Intervention for Women With Obstetric Fistula in Gondar, Ethiopia

Mariya C. Patwa '16, Chemistry

ADVISOR: *Tracy Gladstone, Wellesley Centers for
Women*

Under the mentorship of Dr. Tracy Gladstone, senior research scientist at the Wellesley Centers for Women, this year I have been assisting with research supporting a depression intervention for women in Ethiopia living with obstetric fistula. Through my presentation I hope to share the basis of the qualitative study and complementary research that was run to understand the perceptions of, interest in, and necessity of depression intervention for women with obstetric fistula within a Gondar University fistula center. I will walk through the design of the intervention for this particular community of women. More broadly, I hope to address: Why these women? Where is the gap in this health system? How were depression and mental health investigated for this particular

population both socially and culturally, and through what methods? Finally, I will briefly address plans and goals for this project based on the results thus far for women post-fistula-repair surgery.

Grappling With Traumatic Memories: How Sites of Memory Engage in the Process of Humanization

Isabelle L. St. Clair '17, Individual-Peace Studies

ADVISOR: *Ronald Osborn, Peace Studies*

Sites of memory, whether they are private memorials or national museums, are creative spaces where we can share our memories of a traumatic past to preserve that past. But more so, they inform us of what we want to hold in our minds now and what we want our children to learn in years to come. This research presentation seeks to compare sites of memory across three different countries (Nepal, Jordan, and Chile) to answer: How do these sites deepen our understanding of what it means to be human? These sites (a traveling photo gallery, a Facebook page, and a former detention center) have not only contributed to transitional justice efforts but also fostered strong communities. And still they are spaces that do more than we assume: In handling our memories, they grapple with the complexity of being human, and thus begin a conversation on human rights.

Want a Nudge With That?: The Ethics of Using Libertarian Paternalism for Obesity Prevention

*Sophia H. Gibert '16, Philosophy/Individual-
Biology and Society*

ADVISOR: *Jonathan Imber, Sociology*

Is the state justified in placing taxes on sugary beverages? Do calorie labels offend your autonomy? If your Happy Meal came with water, would you ask for soda? Over the past 10 years, insights from the field of behavioral economics have been increasingly incorporated into government policies that aim to improve the public's well-being in all areas of life. While some see these so-called "libertarian paternalistic" or "nudge" policies as less restrictive than traditional paternalism, others worry about their lack of transparency, impact on freedom, and even inefficacy. In my senior thesis, I examine the philosophical arguments regarding these strategies, with a special focus on obesity prevention and the three policies alluded to above. Join me in exploring these arguments, as well as discovering the surprising

psychological evidence that underlies them and the ways in which the issues of food and consumption raise especially serious concerns.

From Research to Reform: The Role of Action Research in Educational Change (Panel Discussion)

PNE-127

*Michelle S. Chung '16, Psychology; Meridian
A. Witt '16, Media Arts and Sciences; Dorcas
V. Thompson '17, Women's and Gender Studies;
Morgan L. Millon '17, Political Science*

ADVISOR: *Soo Hong, Education*

How does action research differ from other forms of empirical research? Over the course of the spring semester, we students of Professor Soo Hong's Urban Education course individually engaged in a field placement in an urban school or community organization. Our learning in the course was anchored by this field experience, and we each developed an action research project that helped us understand how change and improvements in practice can and should be informed by reflection and action. First, we identified a question or addressed a problem in our fieldwork setting; we then conducted research by collecting and analyzing data from existing literature and our own observations. Last, and most importantly, we took action and applied our knowledge to bring about reform. Carrying out our research projects helped us reflect upon and refine our own practice. Moreover, we developed a more profound understanding of personal, professional, and educational change.

“The Ruhlman is truly a magical, inspirational day that is hard to describe, but is better experienced in person.”

—Barbara Peterson Ruhlman '54

Humanities

Women and Power in the Middle Ages: Breaking the Medieval Stereotype (Panel Discussion)

SCI-392

ADVISOR: *Valerie Ramseyer, History and Medieval/Renaissance Studies*

Matilda of Tuscany and the Investiture Controversy

Naomi L. Whitney-Hirschmann '19, Undeclared

Matilda of Tuscany was an important political figure in 11th-century Italy, known in particular for her crucial role in the Investiture Controversy in which popes and emperors fought over the important question of who had the right to appoint and invest religious leaders in Latin Christendom. This research project investigates Matilda's political and military role in the conflict, and seeks to determine the significance of her leadership.

Matilda of England and the First English Civil War

Seraphina E. Oney '16, History

The House of Plantagenet was one of the longest-ruling dynasties of England. Spanning several centuries, the dynasty produced famous kings, a plethora of literary characters, and the Wars of the Roses, which famously culminated in the founding of the House of Tudor. But prior to the Plantagenet dynasty, there was Empress Matilda. Matilda, daughter of Henry I, was the heir to the English throne through both the Norman and Anglo-Saxon bloodlines. Known by her title from her first marriage, Empress Matilda played a pivotal role in the first English Civil War. She fought against her cousin, Stephen of Blois, for her right to rule independently as England's true monarch, transcended gender boundaries of the time, and ultimately, through her son, founded the House of Plantagenet.

Women and the Transmission of Texts in Medieval Europe

Brianna S. Renta '16, English/Medieval and Renaissance Studies

How do we transmit literature from one generation to the next? Throughout the medieval period, textual innovation and translation were the primary stepping stones for passing cultural, social, and intellectual aspects across time, space, and language. By

engaging critically with modern forms of textual transmission in digital humanities in conjunction with medieval practices of textual transmission, this paper explores the specific ways in which women and other historically non dominant groups have ensured the transfer of literature from the medieval period to today.

Community: An Artistic Exploration of Wellesley's Community Through Yik Yak (Exhibition)

SCI-264

Abigail M. Jones '16, Art Studio/Mathematics

ADVISOR: *Phyllis McGibbon, Art*

Students across Wellesley's campus post on Yik Yak, a social media app that allows people to anonymously create and view discussion threads within a five-mile radius. All users have the ability to contribute to the stream by writing, responding, and "voting up or "voting down" (liking or disliking) yaks, and the feed refreshes every 12 hours. How does the lack of ownership and authorship of the posts affect Wellesley's community? In response to this question, I created an installation last semester that turned these "Yaks" into printed matter and encouraged people to physically engage with them. In this presentation, we will discuss the process of creating the art and will discuss the themes of anonymity, originality, temporality, morality, and community that I explored through this installation.

A New Look with an Artful Eye

SCI-256

Old Meets New, East Meets West: Jin Yunpeng's Lettered Scrolls in the Davis Museum (Exhibition)

Ningyi Xi '17, Art History

ADVISOR: *Heping Liu, Art*

In the collection of the Davis Museum is a pair of lettered scrolls written in 1920 by Jin Yunpeng, the premier of the Republic of China, and given as a birthday present to Galen Stone, the namesake of Wellesley's Stone Tower. A gift from a Chinese politician to an American businessman, this object not only embodies both tradition and innovation but is also a token of China's connection with the West in the early 20th century.

The Secret Sculptor: An Everyday Object in New Light

Shweta Patwardhan '16, International Relations-Political Science

ADVISOR: *Carlos Dorrien, Studio Art*

I began my independent study in sculpture with the idea of taking everyday objects and altering them to somehow add an unexpected element while retaining their familiarity. I eventually chose incandescent light bulbs as the focus of my piece for their aesthetic qualities such as their smoothness and symmetry. I also chose to focus on lightbulbs for their symbolic meaning. It is ironic that the incandescent light bulb, the quintessential symbol of technology and innovation, is itself becoming obsolete as it is steadily replaced by LED bulbs, fluorescent bulbs, and other forms of lighting.

Over the semester I explored new mold-making and casting techniques, as well as new materials, each with their own opportunities and challenges. My finished piece is composed of plastic and plaster representations of glass light bulbs which are encased in clear plastic. Thus the work aims to not only "preserve" the light bulbs, but also to highlight the tension between technology, innovation, and the passage of time.

Performances and Constructions of Gender (Short Talks)

PNE-339

Subverting the Silence: Surrealism, Sexuality, and Queer Self-Fashioning in the Poetry of Federico García Lorca

Laura B. Mayron '16, English/Spanish

ADVISOR: *Jill Syverson-Stork, Spanish*

Spanish poet Federico García Lorca's queer identity was denied until the 1970s, long after his untimely death in 1936, but since then, literary and queer theorists have read his poetry for more clues to his identity and sexuality. My thesis examines Lorca's poetry under the lenses of both literary and queer theory, bringing together biographical information with the Foucauldian study of different authorial "selves." Using what we know about the poet's life and about the variety of poetic identities that Lorca created on the page, my presentation embarks on the study of how his surrealist and theatrical literary techniques create different "stages"

and poetic selves through which he could perform queer identity.

Consuming Hello Kitty: Saccharide Cuteness in Japanese Society

Kimberlee H. Coombes DS, *Japanese Language and Culture*

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

Cuteness is an aesthetic response between a viewer and an object. There is a spectrum of cuteness that allows viewers to feel a variety of emotions based on the object they are interacting with. What is the power behind these objects that makes the viewer develop feelings for them? Cute items in Japanese society are closely associated with the feminine and the vulnerable. The largest consumer of cute products in Japanese is the *shōjo* (young lady). The *shōjo* uses cute objects to create an atmosphere around herself, allowing her to be empowered in the patriarchal society of Japan.

Border Crossings: Women and Migration in the Works of Miguel de Cervantes

Charlotte J. Weiss '16, *Spanish*

ADVISOR: Jill Syverson-Stork, *Spanish*

In the past years, much has been written about Miguel Cervantes' experience as a captive in Algiers. With the rise of academic interest in Africa—especially in the Maghreb as a hub of Mediterranean cultures—many scholars have studied Cervantes' time in captivity (1575-1580) to explore its impact on his life and literary work. For Cervantes, an itinerant migrant throughout his life, his experience in the Maghreb represented his first real encounters with “otherness” in a national, religious, and ethnic context. This thesis, therefore, will explore the complex role of migration in the works of Cervantes through the voices of his female characters. This analysis will illustrate female migrants in the process of self-discovery, searching for a better life through their migratory routes and utilizing their agency to move beyond the geographic and ideological frontiers that seek to restrict and define them.

“Sexless Beings”: Approaches and Responses to Women’s Medical Education in 19th-Century America

Ayesha N. Anwar '16, *History*

ADVISOR: Ryan Quintana, *History*

Shortly after Elizabeth Blackwell became the first woman to obtain an M.D., male and female physicians worked together to found medical schools for female students. These institutions worked to provide education of an equal or greater standard than typical male students received, while placing an emphasis on areas such as hygiene, childbirth, gynecology, and pediatrics, in which early female physicians had a special interest. Examining the reactions to different women’s medical schools allows for a deeper understanding of the evolution of the medical profession in the 19th century. I will be focusing on three medical schools in Boston, Philadelphia, and New York, each with different founders, fundamental ideologies, and receptions by the profession at large. I will also discuss the rise of coeducation and its impact on female medical students, exploring why it did not solve the problem of inequality in the American medical profession, despite the thoughts of many early female physicians.

Past and Present: Classical Cultures, Contemporary Issues (Short Talks)

PNE-127

Is Love Translatable?: Discussing the Translatability of Culturally Specific Ideas in Literature Through a Cognitive Literary Studies Perspective

Xueni (Emily) Jin '17, *Comparative Literature*

ADVISOR: Elizabeth Young, *Classical Studies*

In this presentation, I will present the results of my independent research in the comparative literature department as an extension of the course CPLT 209, *Literature on the Brain: Introduction to Cognitive Poetics*.

Is love translatable? The theory of conceptual metaphor, drawn from cognitive linguistics, proposes that metaphors are not simply formalistic techniques but conceptual categories that structure our understanding of the world. Due to the aid of conceptual metaphors, culturally specific definitions of vast and ambiguous concepts such as “love” could definitely be translated across the borders of both language and culture

through a parallel with concrete and universally applicable elements. First, I will discuss the origination of culturally specific conceptual metaphors in Western and Chinese traditions from the perspective of cultural psychology; then I will analyze the presence of those conceptual metaphors in literature. Moreover, by connecting research from cognitive psychology and cultural psychology to the study of literature, I wish to illustrate the interchangeability of the humanities and the sciences.

An Instant Classic: Temporality, Immortality, and Mediation in Horace’s *Exegi monumentum*

Emily A. Mullin '16, *Classics*

ADVISOR: Raymond Starr, *Classical Studies*

James Porter argues that it is impossible to have an unmediated experience of a “classical” work of art or literature: There must always be someone who has come before the present viewer and already declared the work to be classical. The viewer, then, is never able to experience the classical object without the influences of outside parties. In the epilogue to his third book of *Odes*, Horace begins the classicization of his own poetry by presenting the reader with a future audience that regards Horace as classical; in this way, Horace provides the necessary mediation within the poem itself, and thus makes his claim to the immortality that comes along with “classical” status at once, rather than waiting for the judgment of future readers.

Sacred Time and Secular Power: Bells in the Soundscape of Medieval Arthurian Literature

Madeleine J. Smith '16, *French/Medieval and Renaissance Studies*

ADVISOR: Helene Bilis, *French*

In the comparative quiet of 12th-century northern France, bells dominated the soundscape. Bells were particularly powerful, as they performed a multitude of roles in the medieval community; bells marked the canonical hours of the day, warned people of disaster, celebrated joyous events, mourned the death of individuals, and protected the people spiritually and physically from demons and tempests. This presentation will discuss medieval conceptions of sound in relation to bells and the roles these polyvalent instruments played on both a historical and a literary level. We will see how the role of bells in the soundscape

of Arthurian romance questioned secular authority and problematized the relationship between the medieval Church and conceptions of knighthood. Furthermore, we will explore the ways in which medieval author Chrétien de Troyes confounded the Church with its bells and the commune with its sonorous domination of political power.

Rape as Spectacle: From Ovid and Livy to Game of Thrones

Katherine B. Goldsmith '16, Biological Sciences/Classical Civilization

ADVISOR: *Elizabeth Young, Classical Studies*

There is no single word for rape in the Latin language. But without such violence, there was no Rome. Ancient poets had no one method of presenting such a gruesome reality, instead ranging from hushed undertones to graphic details. Join me as I summarize a year of independent research on ancient Roman depictions of rape and explore what is perhaps the most important question of classical studies: Why should we care what happened 2,000 years ago? What does it say that producers of the hit TV show *Game of Thrones* felt the need to show women brutally raped on screen? What does it mean that we live in a world where a Columbia University student must carry a mattress around for a year to feel heard? Where do we fall on this ancient Roman spectrum: Is rape silenced or put on a stage?

Science and Technology

Exploration of a Potent Novel Anticancer Agent and Its Molecular Mechanism (Panel Discussion)

GRH-130

Milica Markovic '17, Biochemistry; Elisa J. Wang '18, Undeclared; Yin Y. Wang DS, Biochemistry; Emma E. Goodman '17, Biological Sciences; Jennifer C. Chang '17, Biochemistry; Martha K. Aywa '17, Biochemistry; Ronghao Zhou '17, Mathematics/Chemistry
ADVISORS: *Dora Carrico-Moniz, Chemistry; Andrew Webb, Biological Sciences*

Pancreatic cancer is one of the most devastating forms of human cancer, and due to its late-stage discovery and resistance to common treatments, it has one of the lowest five-year survival rates. The Carrico-Moniz laboratory aims to develop potential pancreatic cancer therapies through the synthesis and biological evaluation of novel

organic compounds. Previously, our lab has reported the discovery of isoprenylated coumarin derivatives (based on the natural product angelmarin) that exhibit selective cytotoxicity against pancreatic cancer cells under nutrient-deprived conditions. Our recent studies indicated a clear link between glucose deprivation and the observed cytotoxicity. Current work in our lab focuses on an investigation of a potential biological mechanism behind the cytotoxicity of our lead compound. In addition, we are conducting comparative studies of our compound and the commercially available anti-cancer agents. Finally, we are studying the effect of media conditions of our compound against other pancreatic cancer cell lines.

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

GRH-330

Zena K. Chatila '16, Neuroscience; Megan E. McNeil '17, Neuroscience; Anushree Dugar '18, Undeclared; Kara M. Banson '17, Neuroscience
ADVISOR: *Barbara Beltz, Neuroscience*

Adult neurogenesis, the production of new neurons in the adult brain, is a lifelong process that occurs in vertebrate and invertebrate species. Although it is thought that mammalian neuronal stem cells self-renew, the neuronal precursors found in the crayfish *Procambarus clarkii* and *Procambarus fallax* lack this ability, and instead must be replenished by an extrinsic source. Recent studies have demonstrated that the immune system serves as a source of precursor cells. To enhance our understanding of the relationship between adult neurogenesis and the immune system, we are investigating the physiological and molecular interactions between these two systems. Our aims include (1) defining the electrophysiological properties of immune-derived cells that integrate into the brain; (2) examining the influences of serotonin and astakine, an immune system cytokine, on adult neurogenesis; and (3) studying the characteristics of cultured immune cells and how different agents can bias them toward a neuronal fate.

Toward Environmental Justice: An Interdisciplinary, Community-Based Approach to Address Urban Soil Lead (Panel Discussion)

PNE-139

Rosalie M. Sharp '16, Environmental Studies; Meredith J. Wade '17, Environmental Studies; Idalmis Vaquero '16, Environmental Studies
ADVISOR: *Daniel Brabander, Geosciences*

This panel will discuss three projects in the natural and social sciences that are addressing soil lead contamination in low-income urban communities of color. Environmental justice organizations are working to address lead exposure in urban environments through policy, legal, and organizing strategies. Geochemical analyses of soils and composts inform understanding of lead exposure risk. Our results implicate fine soil grains as the primary cause of elevated blood lead and as a recontamination threat for clean areas. Understanding lead exposure and transport pathways informs sustainable remediation designs. Effectively communicating health risks and remediation strategies requires thoughtful, long-term collaboration with local residents. Partnerships with community organizations like the Food Project come with unique challenges, but ultimately allow for more effective, ethical, and equitable research. Together, these projects examine the social and environmental intersection of lead contamination to identify sustainable solutions.

Cracking the Code: Computers and You (Short Talks)

FND-120

Tutor-Complete: An Educational Game and Intelligent Tutoring System for Languages and Automata

Katherine A. Kjeer '16, Computer Science
ADVISOR: *Eniana Mustafaraj, Computer Science*

Educational games and intelligent tutoring systems have been shown to improve student learning outcomes by increasing engagement and providing individualized instruction. However, while introductory programming students frequently benefit from such systems, students in upper-level theoretical courses such as CS235 (Languages and Automata) have dense textbooks and dry mathematical readings as their primary or only resources. Tutor-Complete aims to fill this gap by presenting two fundamental

CS235 concepts in a game environment. In the first activity, students construct deterministic finite-state automata in order to guide their character across a landscape. In the second activity, students build proofs using the pumping lemma to defeat the “villain” character. Tutor-Complete also fosters a peer-learning environment by encouraging students to explain concepts to each other and providing hints based on past student work. Finally, Tutor-Complete uses Bayesian knowledge tracing to model students’ knowledge and tailor the learning experience accordingly.

Observing and Designing Experiences of Collaborative Learning in Computer Science

Natalie R. Sayed '18, Computer Science
 ADVISOR: *Eniana Mustafaraj, Computer Science*

Peer learning through pair and team programming has become standard in the teaching of computer science. However, there is little research examining relevant models of collaborative behavior in this field. This study seeks to characterize and analyze such archetypes of academic partnership by creating quantified models of these interactions from visual and auditory data, collected in the form of video and audio recordings of problem-solving sessions between computer science students. By refining these models, we seek to identify and distill meaningful and effective learning experiences in computer science. In order to improve upon existing standards of curriculum, we analyze features of effective collaboration, from an understanding of the use of humor as a learning tool to the importance of peer communication and clarification of pertinent lecture- and lab-based information during pair-learning experiences.

GenomiX: A Novel Interaction Tool for Self-Exploration of Personal Genomic Data

Christina S. Pollalis '16, Political Science;
Liliana N. Westort '18, Cognitive and Linguistic Sciences
 ADVISOR: *Orit Shaer, Computer Science*

The increase in the availability of personal genomic data to lay consumers using online services poses a challenge to Human-Computer Interaction (HCI) researchers: Such data are complex and sensitive, involve multiple dimensions of uncertainty, and can have substantial implications for an

individual’s well-being. Personal genomic data are also unique because, unlike other personal data, which constantly change, genomic data are largely stable during a person’s lifetime; it is the interpretation and implications of that data that change over time as new medical research exposes relationships between genes and health. Over the summer, we developed a tool for self-exploration of personal genomic data. To evaluate the usability and utility of the tool, we conducted the first study to date of a genome interpretation tool in which users used their own personal genomic data. This study has since been accepted to the ACM CHI 2016 Conference, which several of our lab members will be traveling to in May.

Profiling Locking Patterns in Multithreaded Programs

Kasey Shen '17, Computer Science
 ADVISOR: *Benjamin Wood, Computer Science*

Concurrent and parallel software systems power many parts of critical human infrastructure. Multithreading is a common model for concurrent software, in which multiple threads of execution running at the same time share the data they use. Since threads are able to run in parallel, tasks may complete faster. However, multithreading is prone to errors when threads try to update and use shared data simultaneously. There exist tools in development to find these errors, but they lack in performance and accuracy. We built tools for profiling program behavior patterns. By identifying these patterns, we will use them to design optimizations of existing tools and save on their associated costs. This presentation explores the profiling results and patterns from these tools and what they suggest in terms of optimization. We will also consider future paths to follow in improving other analysis tools.

A Fundamental Perspective: Math and Physical Chemistry Describe the World

SCI-278

A Mathematician’s View of Scheduling
Simona Stanislavova (Simona) Boyadzhiyska '16, Computer Science/Mathematics
 ADVISOR: *Ann Trenk, Mathematics*

In elementary school, we learn that given any two nonequal integers, we can always determine which of the two is smaller. This is not always possible in the case of other

objects. Consider the schedule of events happening at a conference; we can say that one event is “less than” another if the former ends before the latter begins, but if they overlap in time, then the events are called “incomparable.” The events together with this ordering form what is called a partial order. In fact, they form a special type of partial order, called an interval order. In this talk, we will address questions such as the following: Which partial orders come from schedules? Which come from schedules in which all events have the same length? Which come from schedules in which each event is either one or two hours long?

Generalizations of Nil Clean Elements and Rings

Alexi T. Block Gorman '16, Mathematics
 ADVISOR: *Alexander Diesl, Mathematics*

An object of special interest in the field of algebra is the ring, defined by a set of axioms that generalize certain characteristics of the integers. The defining feature of all rings is that they are closed under addition, subtraction, and multiplication, but not necessarily division. Arguably the most important structure found within a ring is what we call an ideal, which is a subset of the rings element that is closed under addition within that subset, and closed under multiplication by any element in the ring as a whole. In 2013, Professor Diesl of the Mathematics Department defined a property of elements of rings called “nil clean,” and we will extend this notion by defining it for ideals of rings. We will discuss why this extension is a meaningful addition and establish proofs for some characterization theorems concerning rings of special interest.

Planes, Drones, and Helium Balloons: Developing Instruments and Probes for Terrestrial Exploration

Rose K. Gibson '16, Astrophysics
 ADVISOR: *Wesley Watters, Astronomy*

The recent discoveries made in planetary science about Pluto and Mars wouldn’t have been possible without the instruments we sent to investigate these alien worlds. While sending machines into space would be impossible from Wellesley, the availability of compact, lightweight, and inexpensive computers allows us to create tools for collecting a wide range of measurements here on Earth to learn about the planetary exploration process. In the fall semester, I had the opportunity

to prototype instruments for a new project-based astronomy course (ASTR202), and I'm currently working as a teacher's assistant in the class. The probes we are designing use a single-board computer to collect and store data, and can be adapted for terrestrial, aquatic, and airborne exploration. This semester I'm using my experience to build new instruments and assist students with their projects, while also helping to create meaningful, project-based learning experiences.

Social Sciences

Economic Analyses of Education, Health Care, and Voting Behavior (Panel Discussion)

SCI-104

Jacqueline Li '16, Economics; Taylor J. Cranor '16, Economics; Evelyn E. Taylor-McGregor '16, Economics; Suzanne K. Barth '16, Economics/ Sociology

ADVISORS: *Robin McKnight, Economics; Patrick McEwan, Economics; Courtney Coile, Economics; Phil Levine, Economics; Kyung Park, Economics*

Senior honors students from the Economics Department analyze factors that influence individual decision making about educational attainment, health care utilization, and voting behavior. In addition, they evaluate the impacts of those decisions. Taylor Cranor '16 estimates the effect of attending college on long-term health outcomes, using a natural experiment created by the removal of the Social Security Student Benefit program. Evelyn Taylor-McGregor '16 investigates the effects of the Kalamazoo Promise, a place-based, universal college tuition scholarship, on crime rates in Kalamazoo County, Michigan. Jacqueline Li '16 assesses the longer-term impacts of a Honduran conditional cash transfer program that aimed to break the poverty cycle by requiring beneficiaries to enroll in school and receive health checkups. And, using data on all of the Texas elections between 1992 and 2010 and U.S. Census genealogy records of surnames, Suzanne Barth '16 identifies, isolates, and quantifies racial bias in voting behavior for candidates in low-profile elections for public office.

Perspectives From the Freedom Project III: Urban School Choice—Inequity by ZIP Code (Panel Discussion)

FND-225

Elizabeth (Ellie) M. Dougherty '18, Political Science; Mehak K. Sarang '18, Physics; Karen Su '19, Undeclared

ADVISOR: *Thomas Cushman, Sociology; Joshua McCabe, Sociology*

This presentation focuses on equity in the American educational system. For children in low-income communities, education plays a central role in escaping poverty. Nonetheless, many children grow up in neighborhoods with schools that cannot provide sufficient resources for them to succeed. Consequently, children across America are left unable to compete educationally in comparison to their middle- and upper-socioeconomic peers. How is it possible for students who grow up in disadvantaged communities to escape poverty and achieve social mobility when their playing fields are unequal from the start? In an effort to unravel the complexities of this issue, our presentations will focus on the public school system of Boston, a city in which families have the choice to send their children outside of their ZIP codes to better-performing schools. We analyze the various models of education that comprise the Boston system, such as public, magnet, charter, and private schools, and offer policy suggestions on how the system can be improved overall.

Understanding Each Other and Ourselves: Research at Wellesley College (Short Talks)

FND-317

Body Image, Dating Application Usage, and Risky Sexual Behavior

Caroline Arnold '16, Psychology; Tess Opferman '16, Psychology/Spanish; Meryl Rosenberg '16, Psychology

ADVISOR: *Sally Theran, Psychology*

The present study assessed dating app usage among students and body image, adult attachment style, and risky sexual behavior. Participants were 181 females who completed assessments of body image, sexual risk, attachment style, and dating app usage. There was a positive correlation between dating app usage and risky sexual behavior, but this was not mediated by body esteem. Results showed that individuals

with anxious attachment had lower body image than those with secure attachment and that anxiously attached individuals were more likely to use dating applications. There was a trend for those with a preoccupied attachment style to be slightly more sexually risky than individuals with fearful avoidant attachment.

Examining the Effect of Language Brokering on College Students

Cordelia Zhong '17, Psychology; Kaem (Anni) Kim '16, Psychology; Jennifer Guzman '16, Psychology

ADVISOR: *Sally Theran, Psychology*

This study examined language brokering among Wellesley College students. We expected that Asian-American and Latina-American students would be more likely to be language brokers. Drawing on previous research findings, language brokers were hypothesized to experience greater role conflict, detrimentally affecting various levels of college adjustment. Compared to Caucasian-American peers, both Asian- and Latina-American students' language brokering more frequently, but experiences of role conflict and college adjustment were found to be more nuanced. While role conflict was not a significant mediator for college adjustment, Asian-American language brokers were more likely to experience poorer adjustment in regards to their academic performance than the other groups. These results contribute to sparse literature following language brokers' experiences in the college environment. Implications and limitations of this study are considered, as well as ways in which future research can be inclusive of college language brokers.

The Imposter Phenomenon and Nonacademic College Life

Sophie Donohue '16, Psychology; Kyra Huertas '16, Psychology; Mashadi Kekana '16, Psychology

ADVISOR: *Sally Theran, Psychology*

The current study examined the relation between the impostor phenomenon (IP), a feeling of intellectual fraudulence associated with an inability to internalize success, and mental health outcomes, college adjustment, friendship satisfaction, co-rumination, and attachment style. The impostor phenomenon was positively correlated with depression, anxiety and stress levels, worse college adjustment, and anxious attachment style. These results indicate that students who

experience more impostor phenomenon feelings have more negative mental health outcomes and worse personal-emotional adjustment to college. While no evidence was found that IP feelings are related to satisfaction and co-rumination in close friendships, the results of the current study indicate that students with more IP feelings exhibit more anxious attachment in their close relationships and experience worse social adjustment in college.

Language Expression in Song, Writings, and Speech (Short Talks)

SCI-274

Love and Power in Lyrics: The Gender Differences in Songs by Male and Female Artists Across Genres and Generations

Jeanne Gallee '16, *Cognitive and Linguistic Sciences*

ADVISOR: Andrea Levitt, *French*

Research has shown that the lyrics we hear in popular music affect how we view our romantic relationships. My thesis investigates gender differences in the lyrics of female and male artists' songs through a content analysis of three genres of music—pop, country, and rock—across three time periods. I ask whether male and female artists differ in how they speak about potential, present, or past lovers in songs about relationships in terms of love and power. Using narrative coding and quantitative analyses, I hope to identify gender-specific patterns similar to those that sociolinguists have found in male and female conversational speech. Furthermore, I expect to see an increase in lyric length, expressions of power, and sexual references over time for all genres.

The Mystery of Japan's Disappearing Brazilian Population

Helen Gordon Colby '17, *Japanese Language and Culture*

ADVISOR: Yoshimi Maeno, *East Asian Languages and Cultures*

In 2008, Brazilians were Japan's third-largest minority population, with over 300,000 Brazilians living in Japan. However, in the past seven years this number has decreased by over 50 percent, with 100,000 Brazilians leaving in 2009 alone. Yet despite being the largest emigration of people from a developed country in modern history, very little reporting exists on why this exodus

occurred. My presentation tells the unheard story of Japanese Brazilians: how they came to Japan, and what factors forced them to leave. At the forefront will be the controversial 2009 Japanese law that offered approximately \$1,000 to any Brazilian who agreed to leave Japan and never return again.

An Investigation Into the Europeanization of the Written Chinese Vernacular

Katherine J. Hu '16, *Cognitive and Linguistic Sciences*

ADVISOR: Shiao Wei Tham, *East Asian Languages and Cultures*

For this Ruhlman, I am going to discuss Europeanization within the modern Chinese written vernacular. At the turn of the 20th century, Chinese experienced massive reconstruction. Its written language evolved from its traditional *wenyan* form to the current modern vernacular, also known as *baihua*. During this change, Chinese experienced Europeanization, a process in which certain Western linguistic structures are utilized in Chinese grammatical structure. I will discuss this evolution by taking a look into various sources from the time period such as newspapers, opinion pieces, or academic writing, and demonstrate the ways in which the Europeanization of Chinese progressed over time. Then, I will consider the possible factors for why Europeanization occurred: whether they were aesthetic and cultural, or whether they were useful for new, evolving forms of complex expression. Finally, I will look at how these Western linguistic structures became accepted and conventionalized in the Chinese written vernacular.

Foreign Accent Classification

Emily Ahn '16, *Cognitive and Linguistic Sciences*

ADVISOR: Sravana Reddy, *Computer Science*

I see a publicly available foreign accent classification system as an increasingly important feature for current speech technologies. Given that we live in a country that is so international, we must offer equal services to people who speak with different accents. Disability services, like offering automatic subtitles at conferences, would be aided by a system that accounts for varying accents. Areas such as immigration and national security would also benefit from automated systems that could detect English speakers of Chinese, Arabic, and many other backgrounds. For my thesis, I am coding

machine-learning algorithms to classify accents from foreign-accented English. Given a data set of 4,925 phone calls that span 23 different accents, I have trained probabilistic models of each accent. The final product I will deliver is a publicly available web application where users can record their speech in English and see if the application classifies their accent correctly.

Global Issues From Resources to Warfare (Short Talks)

PNE-239

Implementation and Effects of India's School-Based Iron Supplementation Program

Hannah K. Ruebeck '16, *Economics*

ADVISOR: Gauri Shastry, *Economics*

Iron-deficiency anemia (a low concentration of hemoglobin in the blood) is the most widespread nutritional deficiency in India—more than half of school-aged children are anemic, and the rest likely suffer from a milder level of iron deficiency. Children with insufficient iron stores demonstrate diminished cognitive and physical capacity, weakened immune systems, and developmental abnormalities. These critical individual effects, plus spillover effects at the community or country level, make iron deficiency one of the key public health concerns facing policy makers in India. In 2013, India's federal government instituted the Iron and Folic Acid Supplementation Program (IFASP) to reduce the prevalence of childhood anemia by providing supplementation in schools. I use school-level program uptake data to study the variation in implementation of the IFASP and then exploit that variation to examine the effect of the IFASP on children's hemoglobin levels and other nutritional outcomes. Redefining the Role of Female Ex-Guerillas in Colombia's Demobilization and Reintegration Process

Savitri Restrepo Alvarez '16, *International Relations-Political Science*

ADVISOR: Christopher Candland, *Political Science*

In December 2015, supported by the Schiff Fellowship, I traveled to Colombia to interview demobilized female FARC guerillas who are participating in state reintegration programs. Estimates suggest that 40 percent of the combatants in Colombia's decades-long conflict are women. However, the complex role that women have

played has largely been overlooked. Much of the literature on conflict resolution assumes a dichotomy in which women are either “victims” or “perpetrators.” In reality, the distinction between these absolute categories is never entirely clear. The purpose of my trip was to examine women’s particular experiences as combatants, looking at the circumstances that led them to join the FARC, the roles they played within the organization, and their transition back into mainstream society. My research revealed that there is no easy distinction between victims and perpetrators in the conflict, as the majority of female combatants describe an ambiguous experience in which coercion, consent, empowerment, and abuse coexist in uneasy and tenuous relationships.

Just War, Motivations, and Legitimacy: The Case of Military Intervention in Syria

Beba Cibralic '16, Philosophy/Political Science
ADVISOR: *Alison McIntyre, Philosophy*

The purpose of my senior thesis project is to explore, using just war theory, whether or not a U.S.-led military intervention in Syria could be morally justifiable. I focus on the principles of just cause, right intention, and proper authority, and consider the role of motivations and interests in determining the permissibility and legitimacy of an intervention. I argue that the permissibility of a U.S.-led intervention in Syria cannot be determined in isolation from (1) an evaluation of the core and peripheral interests that are driving the intervening agent, the U.S.; (2) a consideration of the historic and contemporary role of the U.S. in the region as well as the legacy of Iraq and Afghanistan; and (3) an appreciation of how the intervention will be perceived by observing states. Ultimately, I suggest that the just war doctrine needs to be modified in order to be a useful moral guide in the contemporary world order.

Impact Assessment on Insulation in Northern Pakistan

Natalie D. Catalan '18, Economics
ADVISOR: *Daniel Sichel, Economics*

How do we know if development projects, social enterprises, or interventions are creating positive impact? Can their claims be attributed to other causes? This Ruhlman presentation will be based on the D-Lab course, Field Research: Understanding Development Impact. Last semester,

I collaborated with Ghonsla, a social enterprise in northern Pakistan focused on selling cheap, efficient, and sustainable insulation. Throughout the semester, we developed a research plan assessing economic, environmental, and health impacts attributed to Ghonsla’s insulation by utilizing quantitative and qualitative social science research.

“From all reports this year’s Ruhlman was the best! I’ve had letters from classmates, alumnae, faculty, and others about how outstanding the girls’ work is and how excellently presented. It has been very heartwarming for me.”

–Barbara Peterson Ruhlman '54

Humanities

Defining Korean Identity Abroad and at Home (Panel Discussion)

SCI-278

Amanda O. Trabulsi '16, Russian Area Studies; Nicole (Nikki) C. Rodriguez '19, Undeclared; Mana Muchaku '18, Economics; Amanda L. Kralej '17, Undeclared

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

In KOR206: Intro. to Korean Language and Culture, we traced the trajectory of Korea’s identity from the country’s origin to the Korean Wave and developed our understanding of Korean history, culture, and society. By taking this course, students had the opportunity to examine diverse aspects of Korean society, from daily life to the spread of Korean culture and the diaspora. The topics of our presentation highlight varied subjects within this multifaceted culture. They include media representations of North Koreans in South Korea; an assessment of the unlikely political and cultural relationship between South Korea and Cuba; an exploration of the anti-Korean movement’s impact on Japanese legislation and Korean sentiment in Japan; and an investigation on how Korean ethnicity is preserved and reshaped by the Korean diasporic communities of post-Soviet Central Asia. Overall, our presentation seeks to illuminate Korean identity and culture from internal and external perspectives.

Cold War Poetics: Defiance in the Margins (Panel Discussion)

SCI-277

Jessica Wu '18, Undeclared; Grace Y. Park '16, American Studies/Political Science; So-yung Mott '16, Women’s and Gender Studies; Jiyoung (Ashley) A. Kim '19, Undeclared; So Jin Ki '19, Undeclared; Emily Chum '17, History; Aya Ross '19, Undeclared; Kasey Shen '17, Computer Science

ADVISOR: *Terry Park, American Studies*

From military brides to the demilitarized zone, effects of the Korean War persist today. Untold and half-erased histories beg the question of whose version we learn and whose stories go unanswered. Through sculpture, photos, film, and other media, AMST 238: Legacies of the Korean War students explore their personal reflections. Each work critically deconstructs the

lens of benevolent U.S. empire from the 1950s to the ongoing present day. Student presentations provide international historical context. However, the nature of exhibiting art allows for direct audience engagement. Each project asks of the viewer: Where do the lines between academia, trauma, and art begin to blur? To what extent are we still complicit in myth making that shrouds separated families and silenced voices? Can we forge collective healing after decades of denial and silence? Generational haunting persists among Korean-Americans. We seek to vocalize the unsaid.

Behind the Curtain: Process to Performance (Panel Discussion)

JAC-450

Natalie J. Solomon '16, Cinema and Media Studies/Theatre Studies; Elisabeth A. Yancey '16, Theatre Studies; Ariela S. Nazar-Rosen '16, English; Jessica M. Forden '17, Economics/Theatre Studies

ADVISOR: *Nora Hussey, Theatre Studies*

In this Ruhlman presentation, panelists will discuss the process of creating a theatrical performance from before the first rehearsal to closing night from directorial, acting, and technical points of view.

Children of Apartheid: Reflecting on Years of Discrimination Through Lullabies (Performance)

JAC-AUD

Cathleen McGovern '16, Music
ADVISOR: *Gurminder Bhogal, Music*

Music is impacted by and impactful of the world around it; apartheid was an era not too long ago, yet a time that completely changed the lived histories of everyone in South Africa and beyond. Looking at music and especially music of the home and children's lullabies opens up a new vantage point from which to view the healing process and see how South Africans continue to be affected. This performance will look at lullabies around the world, centering in on three self-transcribed and arranged Zulu lullabies.

Science and Technology

Nanoscience: Cancer, Drugs, and Other Innovations (Panel Discussion)

SCI-396

Amal W. Cheema '17, Biochemistry; Olivia K. Gada '17, Biochemistry; Kathleen K. Chen '17, Sociology/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. In this panel, we will discuss gold nanoparticles for biomedical and bio-/chemical sensing applications. Gold nanoparticles (AuNPs) can be tailored to create a multifunctional nano vehicle for "smart" cancer treatment. Our nano vehicle consists of a gold shell to which we can attach molecules for targeting cancer cells and treating the cancer. We will examine the construction of these particles and their stability in physiological model systems. In addition, AuNPs can be used as a template for creating hollow nanospheres, which have attracted attention recently because of their potential application in catalysis, separation science, and drug delivery. We aim to improve the structural integrity of currently all-organic hollow nanospheres by incorporating inorganic materials that are stable under highly acidic conditions during the synthesis of these particles.

MuSme (Panel Discussion)

SCI-104

Amal Tidjani '18, Undeclared; Priscilla A. Lee '18, Computer Science; Eileen Cho '16, Neuroscience

ADVISOR: *Orit Shaer, Computer Science*

Music is a beautiful medium through which children can artistically communicate and express themselves. The complexity associated with operating traditional instruments, however, often discourages young children from playing music. In an effort to democratize music making, we propose MuSme, a tangible "skin suit" that reimagines a user's limbs and organs as metaphoric representations of different instruments. Ribs, for example, are reimagined as the wooden panels of a xylophone, while the veins of a child's wrist come to represent the strings of a guitar. By using electrically conductive paint as a

substitute for wires, which have a tendency to tangle, MuSme fosters the illusion that music is truly emanating from a child's body. Furthermore, because our interface eliminates the nuanced technicalities associated with music making, MuSme empowers children to creatively express themselves with their very own bodies. With MuSme, children don't just play music. They become music.

Geochemistry of the Built Environment (Panel Discussion)

SCI-377

Ciaran L. Gallagher '17, Individual-Environmental Chemistry; Emma Van Scoy DS, Undeclared; Rosalie M. Sharp '16, Environmental Studies; Hannah C. Davelman '16, Economics/Environmental Studies; Amanda B. Hernandez '18, Environmental Studies; Hayley N. Jewett '16, Environmental Studies; Hannah Oettgen '17, Geosciences; Alexis Corcoran '18, Biological Sciences; Nisreen Abo-Sido '18, Environmental Studies; Kimberly Chia Yan Min '19, Undeclared; Meredith Wade '17, Environmental Studies/History; Idalmis Vaquero '16, Environmental Studies

ADVISOR: *Daniel Brabander, Geosciences*

Research in our lab blends environmental geochemistry with environmental justice, focusing on the fate and transport of metals and herbicides to better understand exposure risks. The goals involve designing best practices to promote urban agriculture, identifying geological processes associated with contaminant biogeochemistry, and exploring education and outreach models with our community partners. Our group of transdisciplinary researchers with majors ranging from geosciences, environmental studies, environmental chemistry, biology, to history is currently working on projects that span analyzing lead in soils and fruits to analyzing herbicides in tampons. We will share current case studies and offer tools to the audience that can be applied to a range of environmental health challenges. Our different disciplinary and research backgrounds strengthen our ability to approach complex urban geochemical systems. By conducting our research in this uniquely collaborative setting, our project outcomes are expanded, often with immediate implications for public health.

Twenty Years of Ruhlman Under the Loop of Data Science (Panel Discussion)

PNE-239

Hannah Murphy '19, Undeclared; Meredith McCormack-Mager '16, Mathematics; Kate Kenneally '18, Computer Science; Whitney Fahmbulleh '17, Media Arts and Science/ Chinese Language and Culture; Clara Sorensen '18, Biological Science; Mary Ruth Ngo '17, Computer Science; Aline Mitsuzawa '18, Undeclared; Jacqueline L. Hom '18, Computer Science; Anne Schwartz '18, Computer Science; Nina-Marie Amadeo '18, Computer Science
 ADVISOR: *Eniana Mustafaraj, Computer Science*

In our spring 2016 course, CS249 Data, Analytics, and Visualization, we are training to become data scientists. This process starts with asking interesting and relevant questions in a given domain, continues with the collection and analysis of data that can answer the questions using computational approaches, and is finalized with the communication of answers as a way of storytelling with data that includes interactive visualizations. For Ruhlman, we decided to go “meta” and analyze the Ruhlman data: 20 years of Ruhlman Conference programs. In our panel, we’ll be doing storytelling with data while trying to answer questions such as: how have students incorporated their interdisciplinary interests into their Ruhlman presentations; are certain disciplines becoming more popular than others; how is the disciplinary breakdown changing over time; are seniors overrepresented in the conference; how has language of presentations changed over time; and finally, what does Wellesley care about?

Bodies in Motion (Short Talks)

GRH-330

Finding the Invisible Needle: How Directional Dark Matter Detectors Help Us Burn the Haystack

Catherine R. Nicoloff DS, Physics
 ADVISOR: *James Battat, Physics*

Based on astrophysical observations, what we can see with our eyes and telescopes makes up only 15.5 percent of the matter in the universe. Dark matter detectors promise to give us new eyes, but distinguishing these elusive particles from more common types of matter and radiation is difficult. One possible solution is to take into account the motion of the Earth through the Milky Way. This motion gives the dark matter particles a predictable direction, which can

be used to separate their signal from the background noise. We are testing a new type of directional dark matter detector that incorporates a Micro-Mesh Gaseous Structure (MicroMegas) Detector, a fast, high-gain ionization detector widely used in high-energy particle physics. The structure, function, and initial testing of this novel approach to dark matter detection will be summarized.

From Quantum Materials to Pendulums: Finding the Intersection Between High-Level Research and Introductory Physics

Caroline S. Martin '18, Undeclared
 ADVISOR: *Robert Berg, Physics*

Although research is an essential part of an education in physics, it can be difficult to develop independent projects for students with experience only in basic classical mechanics. This year, as part of Wellesley’s SERP, I worked with Professor Berg to find an overlap between my introductory-level physics experience and his research using lasers to explore quantum properties of N-V centers in diamonds. My project was designing and building a high-precision pendulum wave machine using tools like lasers, an optical table, and coding. I was able to develop a wide variety of skills, from electronics to engineering to computer modeling. The project was an exercise in research skills, with the goal of making physics research accessible. This talk will justify the importance of early research opportunities, even when the topics of research are based on introductory courses.

Butterflies, Zigzags, and Photons: Bioinspired Light Confinement

Emma C. Regan '16, Physics
 ADVISOR: *Robert Berg, Physics*

For my thesis, I use biological inspiration to solve a long-existing problem in nanophotonics: Resonant light is partially confined to the structure but can also leak into the environment. Previous methods of confining light using nanophotonic resonances rely on high-index contrast between the photonic structure and the surrounding medium. As the index contrast decreases, the light becomes less confined and eventually disappears. To reduce the substrate leakage, metals or high-index dielectric materials are often used, but both absorb energy and reduce device performance. Using the scale

structure of the *Dione juno* butterfly wing, which contains only low-index biological materials, we present and experimentally demonstrate a new class of surface structures that can support resonances without index contrast with the substrate. This work defies the common wisdom that confining light requires high-index contrast and has applications in photonic circuits and structural coloring.

Second Harmonic Generation Imaging of a Magnetic Topological Insulator

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

A topological insulator (TI) is a new type of quantum material that is insulating in the bulk, yet metallic on the surface. Due to the unique spin properties of the surface electrons, TIs have attracted much interest for their potential applications in spin-based electronics and quantum computers. Even more exotic effects occur when TIs are brought in contact with magnetic materials. We study two-layer thin films consisting of the TI Bi₂Se₃ and the magnetic insulator EuS using a nonlinear optical technique called second harmonic generation imaging. At the interface between the two layers, magnetic domains are expected to form. The domain boundaries are predicted to host chiral edge states, which are dissipationless currents that flow in one direction around a domain. A way of visualizing domains and chiral edge states in magnetic TIs is therefore important for making progress toward novel energy-efficient devices. (Research supported by a Schiff Fellowship.)

Thoughts About Thoughts: Computations of the Brain (Short Talks)

GRH-130

Striosomal Interactions: Experiments on Behavior and the Brain

Julide E. Iye '18, Undeclared
 ADVISOR: *Leif Gibb, Brain and Cognitive Sciences*

The striatum is an important part of the basal ganglia, and previous research suggests that the striatum plays roles in motivation, decision making, and evaluation. It is therefore key to understanding a wide range of neurological disorders. In the Graybiel lab, we are working on projects that center around understanding and analyzing the striosomes and matrix (in the striatum), in

particular both recording and manipulating the activity of the cells within the striosomes and matrix via calcium imaging and optogenetics. I primarily train to perform neurosurgeries on mice to perform injections of virus and implantations of the optical fibers. I also participate in the habituation and training procedures, which involve handling the mice and acclimating them to the setup of the experiment, primarily the maze setup. I will be discussing both the science behind our research and the experience of being a part of a research team working collaboratively on cutting-edge research since late September (supervised by Dr. Leif Gibb while under the principal investigator Dr. Ann Graybiel).

Theory of Mind and Learning Models: Unraveling How We Think About Others' Thoughts

Isabelle A. Rosenthal '16, Neuroscience
ADVISOR: *Bevil Conway, Neuroscience*

Inferring the beliefs and intentions of others (Theory of Mind, or ToM) is critical for social cognition. Impaired ToM is a common characteristic of autism spectrum disorder (ASD). While previous work has implicated certain brain structures as mediators of ToM processing, little is known about the specific computations they perform or what goes awry in ASD. For the past two years, my research on campus and in the Adolphs Lab at CalTech has concerned a novel learning task that explores ToM further by permitting computational modeling of ToM learning processes. By pairing behavioral data and computational modeling (with a goal of including neuroimaging data), there is an opportunity to gain a better understanding of the neural correlates of ToM in healthy controls as well as to identify neural abnormalities underlying ToM impairment in ASD.

Relativizing Conditional Probability

Xueyin Zhang '16, Philosophy/Mathematics
ADVISOR: *Catherine Wearing, Philosophy*

Classical probability theory defines the conditional probability $P(B, \text{ given that } A)$ as the ratio of the unconditional probability $P(A \text{ and } B)$ to $P(A)$, provided that $P(A)$ is nonzero. For example, suppose that we toss a fair dice. What is the conditional probability that it is a 6, given that it is an even number? According to the ratio definition, this conditional probability is given by $1/6$ divided by $1/2$, which is $1/3$. However,

despite its practical utility, this definition faces a host of problems. In this presentation I argue that, contrary to conventional assumption, a seemingly well-defined conditional probability does not necessarily have a unique numerical value. Instead, the value of a conditional probability varies depending on the agents' perspective on the events and the scenario.

Social Science

“But First, Let Me Take a Selfie”: Analyzing the Role Social Media Plays in the “Selfie Generation” (Panel Discussion)

FND-120

Mariana Hernandez '19, Undeclared; Olivia M. Strobl '19, Undeclared; Michelle An Lei (Michelle) Yu '19, Undeclared; Darlene Harsono '19, Undeclared; Gabriela (Steffany) S. Poveda-Solorio '19, Undeclared
ADVISOR: *Heather Bryant, Writing Program*

Social media platforms are arguably one of the most important tools that our generation has available. Never before have humans been more interconnected across the globe. Our class will present our analysis of the power that these platforms have in influencing our culture and investigate the divergence between one's authentic and online identity. Among other examples, we will explore how politicians utilize social media to engage with younger generations. This presentation will discuss both the benefits of this interconnectedness and the drawbacks that social media platforms have on American culture.

Perspectives From the Freedom Project IV: Rethinking Criminalization of Prostitution (Panel Discussion)

FND-225

Holly N. Raiborn '18, Economics; Margaret O. Flynn Sapia '19, Undeclared
ADVISOR: *Thomas Cushman, Sociology; Joshua McCabe, Sociology*

Prostitution generates an estimated \$100 billion in revenue annually worldwide, with an estimated 42 million prostitutes throughout the world. There are varying degrees of legality of prostitution in Western countries. Within these countries, there are variations in the way the law treats the individuals within the industry. In the

United States, most of the individuals (69 percent) prosecuted for prostitution are the women offering the service. Women bear an unequal amount of the legal burden in countries with policies like the United States'. The alternative is what has been called “the Swedish model.” This model, which has been adopted by Norway, Iceland, Canada, and Northern Ireland, has decriminalized the act of selling sex but criminalized buying sex, pimping, or operating a brothel. Our panel analyzes the social and economic implications of the adoption of these new policies.

Multicultural Explorations in Israel (Panel Discussion)

SCI-392

Ariel T. Cohen '18, Undeclared; Sabrina A. Ruiz '18, International Relations-Political Science; Marissa R. Menzel '18, Environmental Studies
ADVISOR: *Audrey Berkman, Hillel*

Sabrina Ruiz, Ariel Cohen, and Marissa Menzel, three Wellesley students from diverse backgrounds, all traveled to Israel over winter break on a multicultural program called the David Project. The purpose of this trip was to encourage dialogue about the Israeli/Palestinian conflict. During this trip, the three visited many significant historical, cultural, and political sites in both Israel and the West Bank. In addition, the group heard lectures from myriad perspectives on the conflict. With this Ruhlman presentation, the group hopes to catalyze a campus conversation about Israel and share their experiences of the Middle East.

Mellon Mays Research Imperatives I (Short Talks)

SCI-274

Exploring Cape Malay Identity Through the Lens of Food

Allyson E. Ang '17, Sociology
ADVISOR: *Tracey Cameron, Office of Intercultural Education*

Made up of South African descendants of slaves from India, Madagascar, Indonesia, Malaysia, Mozambique, and other places, “Cape Malay” is a very contentious identity. In this project, I use a combination of secondary research, observations, and informal conversations with people who could be classified as Cape Malay to explore the extent to which they feel connected to their slave heritage. I look at Cape Malay

identity through the lens of food, as food is an important marker of tradition and culture. Through my research, I find that although there are many aspects of slave ancestry that can be found in Cape Malay culture, Cape Malay people today identify more with their distinct South African identity rather than with their slave heritage.

La lotería de la vida: A Family Ethnography

Cassandra Flores-Montano '16, Women's and Gender Studies

ADVISOR: *Irene Mata, Women's and Gender Studies*

This ethnographic research project served as the final for Professor Mata's Crossing the Border: Narratives of Transgression seminar. I interviewed my maternal grandparents and transcribed their stories as they related to education, immigration, and deportation. I also created numerous cards to accompany each of their stories. Although *lotería* is a game of chance, I do not mean to imply that their experiences happened by chance. In fact, I found that their experiences were firmly rooted in their previous identities as undocumented immigrants from Mexico to the United States. I was able to draw from the materials that were read and discussed in the seminar to contextualize their stories within greater systems of oppression. I consider this work to be a small component of a greater decolonial project, which privileges the voices of a historically marginalized people by centering and engaging their narratives.

A Shared Experience

Grace Y. Park '16, American Studies/Political Science

ADVISOR: *Kathleen Brogan, American Studies/English Department*

The immigrant experience, though diverse and transcending race and time, is often best understood through the stories of those immigrants themselves. A critical analysis of key works in the genre of immigrant and diaspora literature led to previously undiscovered points of intersection for immigrants from Asia, Africa, South America, Europe, and beyond. My research seeks to make sense of these connections and their broader implications on the purpose and use of immigrant literature in defining or decoding the immigrant identity. Analyzed works include Chang-rae Lee's

Native Speaker and Junot Diaz's *The Brief and Wondrous Life of Oscar Wao*.

Reflecting on Roots: Exploring the Salience of African-American Ethnicity in an Increasingly Diverse Black America

Tamar Davis '16, Sociology

ADVISOR: *Joseph Swingle, Sociology*

Between roughly 1910 and 1970, the sociopolitical landscape of the United States dramatically changed as over 6 million African-Americans left their homes in the rural South to create new lives in the North, Midwest, and West. This movement, known as the Great Migration, represented what author Isabel Wilkerson described as “the first mass act of independence by a people who were in bondage in this country for far longer than they have been free.” Decades later, toward the mid-20th century, the Black community experienced another demographic shift as immigrants from the Caribbean and Africa began to migrate to the United States.

Self-Love in Aristotle's Nicomachean Ethics and Eudemean Ethics

Claudia Yau '16, Philosophy

ADVISOR: *Corinne Gartner, Philosophy*

Aristotle's ethical theory focuses on how we ought to live and what constitutes a flourishing life. Motivated by the common intuition that nobody would choose a life without friends, Aristotle presents a theory of friendship, explaining what it consists of and the role of friendship in a person's life. He lists the following features of friendship, among others: a friend wishes and does good or apparent good to her friend for the friend's own sake, spends time with her friend, and shares her friend's enjoyments and distresses. Drawing from Aristotle's books on friendship, the *Nicomachean Ethics* and the *Eudemean Ethics*, I offer an interpretation of Aristotle's account of self-love and consider how self-love differs from selfishness, friendship with oneself, and wishing well for oneself. Equipped with an understanding of self-love, I examine the role of self-love in the lives of virtuous agents and consider whether vicious people can be self-loving.

Real and Imagined Relationships (Short Talks)

PNE-127

Queen and King of the Playground: Understanding Gender Roles in a Preschool Classroom

Shelby (Riley) J. Abeles '16, Psychology

ADVISOR: *Beth Hennessey, Psychology*

Gender is one of the more complicated identity traits to model, investigate, and comprehend. Any adult will tell you that an individual's gender identity involves physiology, clothing, behavior, occupation, cultural values, societal norms, and personality differences. Young children cannot appreciate this level of complexity, yet when asked to describe themselves using only one descriptor, they tend to choose gender over race, ethnicity, and even age. Right from the start, gender plays a prominent role in our developing sense of self. One of the primary vehicles that children use to explore and learn about gender is play. My psychology honors thesis explores the relation between young children's formation of and adherence to gender stereotypes, their preferences for specific styles of play, and the narratives they create during play.

How Our Irritable Selves Read the Emotions of Others

Alexandra (Ali) L. Roule '16, Psychology

ADVISOR: *Christen Deveney, Psychology*

Children with chronic and severe irritability demonstrate marked problems in their relationships. These difficulties may be due to an impaired ability to recognize emotions in others' facial expressions (e.g., misinterpreting a neutral expression as argumentative) and could lead them to act in ways that surprise or annoy others. To better understand the relationship between irritability and interpersonal functioning, this study investigated whether a frustration manipulation (a proxy for irritability) impaired young adults' identification of emotions in facial expressions. Subjects were randomly assigned to a frustration or non-frustration condition, after which they were shown short sequences of facial expressions changing from neutral to an emotion. Irritability is expected to impair general emotion recognition, but enhance the perception of anger—similar to adults with high levels of aggression. This study, which used an unselected group of undergraduates,

was designed in hopes of informing future studies of more representative and clinical samples.

Remembering the Imaginary: Memory for Imagined Relationships and the Connection Between Fantasy Orientation and Social Ability in Adolescents

Grace E. Bennett Pierre '16, Psychology
ADVISOR: *Tracy Gleason, Psychology*

Creating imaginary friends is a common occurrence in early childhood. However, the relationship between creating imaginary friends as a child and having an interest in fantasy later in development is an open question. Similarly, although having an imaginary friend in early childhood is associated with greater social ability, whether fantasy orientation is related to social ability later in life is unknown. For my thesis, I interviewed adolescents who participated in a study about imaginary friends they had when they were preschoolers. I predicted that the age at which a child created an imaginary friend and family elaboration of the friend would influence whether adolescents remembered their imaginary friend, and that current fantasy orientation would be positively associated with Theory of Mind ability. Results from this project will contribute toward our understanding of the continuity and change in imaginative orientation. (Supported by the Psychology Department and the Office of the Dean of the College.)

Imaginary Companions: Complexity and Relationship Type

Hea Jung Lee '16, Psychology
ADVISOR: *Tracy Gleason, Psychology*

Preschool children's imaginary companions (ICs) serve various purposes, such as providing social benefits, and vary in three dimensions: form (i.e., invisible companions or personified objects), relationship type (i.e., egalitarian or hierarchal), and complexity. IC complexity is defined by whether the IC interacts only with the child or with additional imagined entities. Previous research has shown that form and relationship type are related, but whether relationship type is related to IC complexity has been relatively unexplored. Therefore, my research investigates whether IC complexity is related to the type of IC relationship. An egalitarian relationship may be more complex than a hierarchical

relationship because the child treats the IC as an equal, which theoretically requires more sophisticated social skills on the child's part. The complexity of ICs will be assessed through parent-completed diaries of children's ICs and parent and child interviews, which provide information on how children interact with their ICs.

Integration, Reintegration, Disintegration (Short Talks) FND-317

The Social Dimensions of War: Factors of Operational Success for Russia's Military

Marilis (Mari) E. Dugas '16, Political Science/Russian Area Studies
ADVISOR: *Stacie Goddard, Political Science*

What factors are vital to the success of military operations? In the case of the contemporary Russian military, most scholars have attributed success in both Georgia (2008) and Crimea (2014) to a reformed and technologically improved military. Despite a widely accepted "victory" in Georgia, Russia's military performed disastrously, which catalyzed a series of reforms and modernization projects within the military. Many scholars have traced these reforms to the success of Russia's operations in Crimea in 2014, citing their superior technology and organizational learning. My thesis addresses the reality of Russia's military operation in Crimea, which I argue was dependent more on existing social collaborators, intelligence networks, and Russia's special operations forces, rather than an overwhelming conventional display of military force. I explore what we can learn about Russia's military from Crimea, and what other conditions would make possible a similarly structured military operation in other countries bordering Russia.

What Fuels Political Violence?: Analyzing of the Effects of Natural Resources on Insurgency Warfare

Alice (Alice) Y. Liang '16, Economics/Political Science
ADVISOR: *Paul MacDonald, Political Science*

Natural resources such as oil, diamonds, gold, and gems are typically seen as assets that strengthen a state's wealth and power. But they may also weaken a state's institutions, giving way to grievances, and natural resources often serve as a major funding source for insurgencies and their recruits. In my thesis, I ask, under

what resource conditions does political violence begin, and under what conditions does it escalate? Using case studies and a subnational quantitative analysis of political violence in Africa from 1997-2015, I seek to separate and understand these mechanisms. The results have policy implications for what forms of counterinsurgency, or what forms of tactical strategy, would be most effective in preventing, or advancing, political violence. (Research supported by the Jerome A. Schiff Fellowship.)

When Heads Roll: Assessing the Effectiveness of Mexico's Decapitation Strategy

Delia M. Arias De Leon '16, Political Science
ADVISOR: *Stacie Goddard, Political Science*

In December 2006, Felipe Calderón Hinojosa became Mexico's 36th president, and immediately deployed thousands of military troops to combat the ever-growing spread of the Mexican drug cartels. An unprecedented increase in violence ensued. Critics have labeled the Mexican government's strategy ineffective and counterproductive, particularly because of its overreliance on the military and on leadership targeting. Engaging with the debate on the effectiveness of the strategy, I contend with the literature on two points. First, I suggest that a majority of critics fail to take into account the extent to which Mexican institutions suffered from severe corruption when Calderón took office and lack a thorough analysis of alternatives. Second, and most importantly, I question the primary measure that scholars have used to evaluate the success of this strategy—an increase in levels of violence following leadership decapitation—and seek to lay out alternate measures to assess the strategy's success.

Integration of Syrian Refugees in Jordan

Andrea P. Aguilar '16, Political Science
ADVISOR: *Stacie Goddard, Political Science*

The most recent figures released by the UNHCR puts the number of Syrian refugees residing in Jordan at about 630,000, a figure that accounts for nearly 10 percent of Jordan's total population. Not surprisingly, the inflow of Syrian refugees has put a strain on the country's resources as the government struggles to effectively respond to the crisis. However, after more than four years since the start of the crisis, Jordan remains one

of the most stable countries in the region. What explains Jordan's relative stability in the face of one of the worst refugee crises of the modern era? For the past year, I have tried to answer this question as a thesis student in the Political Science department. My experience has been eye-opening, both on an intellectual and a personal level, as I have had the opportunity to conduct field research in Jordan and discovered the value of independent learning.

“The musical presentations we attended were absolutely marvelous, and I loved the Book Arts presentation.”

—Barbara Peterson Ruhlman '54

Humanities

Our Storied World: Digital Storytelling as Cultural Anthropology (Panel Discussion)

SCI-396

Kavindya Thennakoon '19, Undeclared; Maryam Chloe Pervaiz '19, Undeclared; Faiza S. Aslam '19, Undeclared; Vivian D. Zhang '19, Undeclared; Dina Ahmad Hasan Al-Zu'Bi '19, Undeclared; Malak Alsayyad '19, Undeclared; Blake Cohen '19, Undeclared; Chloey Garza '19, Undeclared; Hema Venkata '19, Undeclared
 ADVISOR: Justin Armstrong, Writing Program and Anthropology

This panel examines the ways in which writing, anthropology, geography, audio/video production, and storytelling can create a multilayered ethnographic narrative. Here, we ask how society writes itself into existence at the beginning of the 21st century and how we use all forms of media to produce and consume the stories that we tell ourselves about ourselves. In this panel discussion, we will focus on the use of audio and video production as a powerful method of storytelling. We will also discuss and showcase our own digital stories that we produced in our First Year Seminar (WRIT/ANTH 102/115). The stories not only represent diverse viewpoints and experiences but also display a unique set of cultural and geographic perspectives.

The Selfie in American Life (Panel Discussion)

SCI-278

Helen M. Andersen '19, Undeclared; Daniela Kreimerman '19, Undeclared; Margaret (Margaret Anne) A. Collins '19, Undeclared; Se Yun Cheon '19, Undeclared; Diana Cruz '19, Undeclared
 ADVISOR: Heather Bryant, Writing Program

Our class spent our time studying selfie culture and the role selfies and their presence on social media play in our lives. We looked at why people take selfies, what they do with them, the life they take on after being put up on social media for others to see, and how this affects us and how we view ourselves. Through studying the selfie, we gain insight not only into our own lives but also into our relationships with our friends, with leaders and celebrities, and with the world around us.

Shakespeare Society: Twelfth Night and Much Ado About Nothing (Short Performance)

JAC-450

Katherine (Kate) M. Bussert '16, Theatre Studies/English; Rowan S. Winterwood '16, Cognitive and Linguistic Sciences/Theatre Studies
 ADVISOR: Diego Arciniegas, Theatre Studies

The Shakespeare Society presents scenes from this year's plays: *Twelfth Night*, directed by Katherine Bussert, and *Much Ado About Nothing*, directed by Rowan Winterwood.

Year Zero: A Visual Narrative of the Cambodian Genocide (Exhibition)

SCI-256

Julia S. Um '16, Economics
 ADVISOR: Phyllis McGibbon, Art

Year Zero: A Visual Narrative is an exploration in alternative methods of biographical storytelling as well as an ethnographic research project focusing on the Khmer Rouge genocide (1975-1979) and the subsequent Cambodian diaspora. *Year Zero* is intended to educate and reveal in an intimate manner four years of a family's struggle to survive under conditions that killed over 1.7 million Cambodians. Through the lens of the daughter of a refugee, the story will be revealed to viewers through visual interpretations of the stories shared by her family as well as recordings of candid conversations in which she learns her family's history.

Stratified Elevations (Exhibition)

SCI-264

Zhixing (Wanwan) Fei '16, Art Studio
 ADVISOR: Andrew Mowbray, Art

A house designed and built in a computer game, *The Sims 4*, is transformed into an architectural design project and then an experiment in visual representations of architecture. Two elevations of the house were selected and stratified by material into layers of illustration boards. Layers are color-coded by their corresponding materials and are organized by the order of distance away from the view plane. The abstracted house elevations look as if they are flattened, yet subtle shadows cast on each layer constantly remind viewers of their three-dimensionality.

Science and Technology

Characterizing Structures and Functions of Histone-Derived Antimicrobial Peptides via Experimental and Computational Methods (Panel Discussion)

GRH-130

Amy Yuan '16, Chemistry; Lei Wei '16, Biochemistry; Sukin (Hannah) Sim '16, Individual-Chemical Physics; Carla P. Perez '18, Chemistry; Sung Hyun (Sarah) Lee '16, Chemistry; Dania M. Figueroa '17, Biochemistry
ADVISOR: Donald Elmore, Chemistry

The Elmore lab is interested in studying the structure, potency, and mechanism of action of antimicrobial peptides (AMPs), a novel class of antibiotics. Histone-derived antimicrobial peptides (HDAPs) are one class of AMPs that are derived from histones, which are proteins best known for packaging nucleic acids in cell nuclei. While AMPs are known to either permeabilize the membrane to induce cell lysis or translocate across the membrane to interfere with intracellular processes, little is understood about the specific binding targets. The lab is in the process of developing computational models with molecular dynamics and experimental approaches utilizing confocal microscopy, cellular assays, and spectroscopic measurements to investigate mechanisms of action. By modifying and studying the relationship between peptide structure, amino acid composition, and peptide function, the Elmore lab hopes to improve the therapeutic potential of AMPs in a clinical setting.

Molecular Matchmaking: Using Computational Techniques to Study and Design Perfect Protein Matches (Panel Discussion)

GRH-330

Fides G. Nyaisonga '16, Chemistry; Nusrat Jahan '16, Chemistry; Diane Cheon '17, Chemistry; Yuanyuan (Laura) Luo '17, Chemistry/Mathematics
ADVISOR: Mala Radhakrishnan, Chemistry

Humans aren't the only ones with commitment issues: Proteins sometimes can't seem to bind and stick well to their biological partners, either. By using computational techniques, the Radhakrishnan lab studies biological

systems and properties that may be difficult to study experimentally. Through various computational methods, we aim to model drug-protein systems and study the determinants of protein binding. Taken together, we hope our work provides more insights into protein interactions and offers suggestions that can be tested experimentally to enhance the process of biomolecular matchmaking.

Vision and Art: Independent Interdisciplinary Investigations of the Human Visual System (Panel Discussion)

FND-120

Nancy A. Zhang '16, Mathematics; Ali N. Johnson '16, Neuroscience; Jessica N. Kelemen '16, Neuroscience; Hope C. Fuller-Becker '16, Neuroscience; Amanda B. Fath '16, Neuroscience; Sydney M. Cadiz '16, Neuroscience
ADVISOR: Bevil Conway, Neuroscience

Our neuroscience course, Vision and Art, was an interdisciplinary investigation of the human visual system incorporating physiology, art, physics, and neurobiology. We use visual art to motivate our examinations of the fundamental physiological and computational processes of vision. Harmoniously understanding the integration among various components of the visual system provides a unique framework for how we view and create art. Panelists integrated their diverse interests with their inquiries of the visual system through a term project. The topics of the panel include: investigating racial defeminization of black women by tracking eye movements upon viewing images of black and white men and women; performance of computer vision algorithms on face detection in Cubist art; effects of color association of familiar objects on color memory; music-color association mediated by emotion; color and emotion relation; and determining the innate or learned nature of color memory.

Science in the Great Outdoors (Short Talks)

SCI-277

Evaluating the Potential of Alkaline Battery Oxide Powders to Reduce Lead Mobility in Urban Agricultural Settings

Nisreen S. Abo-Sido '18, Environmental Studies; Ciaran L. Gallagher '17, Individual-Environmental Chemistry
ADVISOR: Daniel Brabander, Geosciences

Urban agriculture in many Boston communities increases food sovereignty, strengthens community ties, and promotes youth leadership development. However, elevated levels of the neurotoxin lead in urban soils requires the development of best practices to minimize exposure. Adding municipal compost minimizes the resuspension of highly contaminated fine soils and may alter the geomobility of lead. We are investing the use of manganese oxide (MnO) to reduce the geomobility of lead in various soil matrices. MnO is being sourced from spent alkaline batteries to minimize cost and repurpose the 3.5 billion alkaline batteries used annually in the U.S. We planted the hyperaccumulators mustards in compost, soil, and a compost-soil mixture with and without MnO amendment. Since green leafy vegetables are commonly grown in urban settings and have been shown to bioaccumulate lead, we aim to further refine best practices for sustainable urban agriculture by exploring cost-effective and environmentally beneficial protocols.

Testing the Caldera Origin of the Blue Hills: U-Pb Geochronology of the Wampatuck Volcanics, Milton, MA

JoNan C. Bilodeau DS, Geosciences
ADVISOR: Margaret Thompson, Professor emerita

This project will test the published account that the Blue Hills Reservation granites and volcanic rocks are part of an ancient caldera system. Calderas form when a magma chamber rapidly drains and the overlying rock collapses. If the caldera interpretation is correct, then the volcanic rocks in the Blue Hills must be older than the rocks (including the Quincy Granite and Hancock Porphyry) that would have crystallized in the chamber. U-Pb geochronology will establish absolute ages for these rocks and thus the sequence of events. The volcanics and Quincy Granite have already been dated. A new date from the Wampatuck volcanics will complete this data set.

The Effects of Pollen Stress During Larval Development on the Nursing Behavior of Adult Honeybees (*Apis mellifera*)

Corena M. Loeb '16, *Biological Sciences*
ADVISOR: Heather Mattila, *Biological Sciences*

Worker honeybees perform most of the tasks required for colony function, including foraging for nutrient-rich food such as pollen. However, both natural and human-induced stressors can result in pollen dearth in colonies, which may impact growing larvae that rely on the nutrients from pollen for proper development. This project's goal was to examine the effects of pollen dearth during larval development on the ability of workers to care for (or "nurse") larvae when they become adults. Focal workers were reared as larvae in colonies that had either inadequate or abundant pollen supplies for brood rearing, and then were monitored for their nursing behavior when they were adults. Focal bees were also assessed for hypopharyngeal gland development, which is an important physiological marker of nursing behavior. Our study will provide insight into the important role that pollen stress plays in supporting the function of healthy and productive honeybee colonies.

The Influence of Predatory Chemical Cues on the Foraging Behavior of *Hogna lenta* Wolf Spiders

Ellice Patterson '16, *Biological Sciences*
ADVISOR: Christa Skow, *Biological Sciences*

Larger predators can influence smaller predators' foraging behavior. This experiment, conducted as an independent research project under the guidance of Christa Skow, sought to examine these influences. My hypothesis, based on Wilder and Rypstra's study (2004), was that the smaller predator *Hogna lenta* wolf spider's foraging behavior will be greatly inhibited by the chemical cues of larger predators, tarantulas. The chemical cues of tarantulas were obtained and placed in a testing arena with wolf spiders. Each wolf spider was tested separately to see if the tarantulas' chemical cues would inhibit or encourage the wolf spider's cricket consumption, the measure of successful foraging. Different factors of foraging behavior, such as time spent immobile, number of crickets consumed, and distance traveled, were analyzed to see how these aspects were influenced by predatory chemical cues and therefore if successful foraging occurred.

Social Sciences

Carbon Copy: A History of Greenhouse Gas Emissions at Wellesley College, 1990-2015 (Panel Discussion)

SCI-104

Alyssa N. Brody '16, *Political Science/ Environmental Studies*; Charlotte H. Benishek '16, *Environmental Studies*; Julie Rong '16, *Environmental Studies*; Samantha L. Brown '16, *Environmental Studies*; Catherine E. Burnett '16, *Biological Sciences/Environmental Studies*; Sofia C. Diaz De Villegas '17, *Biological Sciences/Environmental Studies*; Sumner M. Hanula '17, *Environmental Studies*; Vivienne Tateyuskanskan DS, *Environmental Studies*; Leah M. Nugent '16, *Environmental Studies/ Anthropology*; Rebecca A. Matteson '16, *Environmental Studies/English*; Rita Mary Hennigan '16, *Environmental Studies*; Hayley N. Jewett '16, *Environmental Studies*
ADVISOR: Monica Higgins, *Environmental Studies*

Wellesley College has long been committed to sustainability efforts, but given the continued threat of anthropogenic climate change, there is still far more work to be done. In order to understand the magnitude of this institution's current greenhouse gas emissions, it is necessary to first unpack the College's historical emissions. This year's Environmental Studies capstone class conducted an inventory of Wellesley College's emissions in 2015, building onto the inventories conducted by previous capstone classes. Using a commercial carbon calculator, we estimated Wellesley's 1990 carbon emissions and compared them to our footprint in 2003, 2008, and 2015. By educating stakeholders about our consumption, we can further Wellesley's commitment to cutting greenhouse gas emissions.

Mellon Mays Research Imperatives II (Short Talks)

SCI-274

Creating a New Vision: Reimagining Healthy Relationships Among LGBTQIAP+ Communities of Color and Complicating Narratives of Domestic Violence

Gabriela Asnaran '17, *Women's and Gender Studies*

ADVISORS: Nancy Marshall, *Women's and Gender Studies*; Octavio González, *English*

Current narratives of domestic violence (DV) do not capture the reality of how intersectionality necessitates nuanced approaches toward advocacy. In October 2015, the TOD@S Collaborative, a coalition transforming access for LGBTQIAP+ survivors of color, launched their #QTPOCLove campaign to spearhead a larger conversation surrounding DV within the community, bridging survivors to existing services and support networks, as well as reimagining healthy relationships and illustrating the many different forms abuse can take or what survivors of this abuse look like. In beginning to take abuse out of the closet, it is crucial to examine sites of agency and access created from these reimaginings. This inquiry explores the changing tide of new representations of LGBTQIAP+ survivors of color in the context of my internship with the TOD@S Collaborative, as well as my personal investigation of the canonical texts surrounding DV and the historical, repeated erasure of LGBTQIAP+ survivors of color in canon.

Exploring Mental Health Perspectives Among Black and African-American College Students

Christiana Joseph '16, *Anthropology*
ADVISOR: Justin Armstrong, *Writing Program*

Mental health is clearly a vital factor that influences how students perform in college, particularly students of color. Students' voices need to be heard in order for the perceptions of mental health among Black and African-American undergraduate students in the United States to truly be analyzed. The narratives about mental health that students construct based on their experiences will serve to improve mental health discussions on U.S. college campuses. This research project best enables students at a consortium of undergraduate institutions in the Northeast to share their

unique perspectives on mental health, mental disorders, and seeking help for mental disorders or disturbances because it specifically focuses on their voices and their experiences. By including these perspectives, this project provides significant information that will encourage institutions to make tangible improvements in the services they offer their students. When how Black and African-American undergraduate students in the U.S. perceive mental health and mental disorders is better understood, then better methods can be developed that cater to their mental needs, help students feel safe and a part of the campus community, and keep more students in school.

Radicalizing Community Colleges

Christina Phelps '17, Sociology
ADVISOR: *Noah Rubin, Education*

Community colleges are stigmatized as inferior institutions of higher learning, and are often defined by their high attrition rate. But these stigmas are based on a largely a snobbish, classist assumption that reproduces educational inequality. Indeed, there are practices at community colleges that produce desirable outcomes for students. In order to understand these practices more specifically, I interviewed students at Roxbury Community College and Bunker Hill Community College. I learned that students come to community college to energize their drive for education and career development and feel supported when they have opportunities for their voices to be heard. If community colleges openly challenge the snobbery that stigmatizes those institutions as inferior, then they can become radically empowering institutions that offer a transformative education to all who choose to engage.

Teacher Activism: Addressing Inequalities in the Classroom

Huiying Chan '16, Individual-Ethnic Studies and Education Studies
ADVISOR: *Soo Hong, Education*

Issues of race and social inequalities exist in every public school classroom today, especially in urban schools. Given this current state, how and why do teachers incorporate critical analyses of race and inequality into their classrooms? Drawing from my field work in a third-grade classroom in Haley Elementary School in Boston, I will share findings from my action research investigating the extent

that teacher-activists can bring the change they want to see in their classrooms. In my project, I also highlight the importance of culturally relevant pedagogy, especially for youth of color.

Perspectives From the Freedom Project V: Censorship in International Perspective (Panel Discussion)

FND-225

Xueying Chen '16, Economics/English; Chuqi (Cassandra) Zheng '18, Mathematics; Caroline Bechtel '17, Political Science
ADVISOR: *Thomas Cushman, Sociology; Joshua McCabe, Sociology*

Social media has become a central part of modern life. It is estimated that there will be around 2.13 billion social network users around the globe in 2016, nearly double the 2012 figure of 1.4 billion. How does censorship affect the usage of social media? How do nations try to balance a concern for internet-induced violence and national security, on the one hand, and personal freedom, on the other? China is a country with strict censorship laws, but also is known for its great economic and technological advances in the past.

Formal and Informal Education (Short Talks)

PNE-239

Bones Don't Lie: Use of Archival and Forensic Perspectives to Understand the Origins of the Wellesley College Human Skeletal Anatomy Teaching Collection

Isabel (Izzy) M. Starr '16, Anthropology
ADVISOR: *Adam Van Arsdale, Anthropology*

Skeletal anatomy teaching collections are found in most medical schools, universities, and museums as teaching tools to interact with and understand the structures of the human body. By combining historical and archival research with forensic analysis of osteological data, my senior honors thesis research searches for the origins of the Wellesley human skeletal anatomy teaching collection. In this research, I investigate how the composition of individuals' age, sex, and ancestral background compares with and exists in relation to other human skeletal anatomy teaching collections of the early 20th century, as well as providing further background on the Wellesley Zoological Museum and the use of the human skeletal

anatomy teaching collection at Wellesley. Who were these individuals, and how did they come to be used to teach Wellesley students human skeletal anatomy?

Modernizing High School Mathematics: How 3D Printing and Modeling Technology Can Enhance Student Learning

Sophia N. Zupanc '19, Undeclared
ADVISOR: *Kenneth Hawes, Education*

High school geometry curricula challenge students to visualize, understand, and analyze the figures that fill the space around us. These classes teach students how to think clearly and rigorously while revealing to them the spatial characteristics of the world. However, students are not always able to visualize in the way they need to; they struggle when asked find surface area and volume of 3D figures not because they misunderstand the concepts, but rather because they are unable to visualize and thus properly apply the mathematics to it. Over Wintersession, I worked in collaboration with a high school mathematics instructor to enrich the school's geometry curriculum through 3D printing and modeling. This technology gave our students the ability to manufacture their own 3D figures instead of relying on convoluted and misleading 2D representations of them. The enrichment gave our students confidence in both themselves and in their ability to use other mediums to deepen their understanding. They were motivated and excited, with 100 percent reporting that they could now better visualize 3D geometric shapes.

Seed Kit: Creating a Lab-in-a-Box to Address Gendered Science Education Inequities in the Developing World

Caleb E. Bercu '16, Women's and Gender Studies
ADVISOR: *Wendy Robeson, Wellesley Centers for Women*

Inequities in science classrooms in developing countries limit science education for girls, as scarce educational resources are often allotted to boys. The impacts of educational gaps affect all of society, as without female doctors, teachers, and policy makers, inequities are perpetuated. Seed Kit (Science Education Equity Development Kit) is a low-cost, reusable, and sustainable lab-in-a-box designed to be used in secondary school classrooms without running water or electricity. The primary focus of Seed Kit is to provide more educational opportunities

for the inclusion of women and girls in STEM by providing essential hands-on learning activities in chemistry, biology, and physics to secondary students.

Public Education, Civic Engagement, and the Latinx Vote

Rita G. Marquez '16, Physics; Alejandra Cuin Miranda '16, Economics/Latin American Studies; Andrea P. Aguilar '16, Political Science
ADVISOR: *Domingo Morel, Political Science*

An abundance of research indicates a correlation between civic learning and voter participation. For most Americans, civic skills are developed and nurtured in school. But is everyone engaged equally? For our presentation, we will look at inequality in the public school system and explore the factors that inhibit political participation among Latinx youth.

We're Only Human (Short Talks)

SCI-377

Interpersonal Identity and Behavioral Motivations in Monozygotic and Dizygotic Twins

India H. Kerle '16, Psychology
ADVISOR: *Julie Norem, Psychology*

This study examined a participant's degree of interpersonal identity in relation to their friendships, sibling relationships, monozygotic twin relationship, or dizygotic twin relationship. I found that monozygotic twins had a stronger sense of interpersonal identity than any other relationship dyad. I also developed two new relational constructs that were examined within these groups: the "compensatory effect" and the "contrasting effect." The "compensatory effect" refers to an individual's motivation to de-identify to the other in the relationship dyad, while the "contrasting effect" refers to an individual's motivation to protect the other in the relationship dyad. Monozygotic twins demonstrated significantly less compensatory effect than any other relationship dyad. Results were inconclusive regarding the contrasting effect construct. Future studies should develop more reliable motivation measures in monozygotic and dizygotic twin relationship dyads.

Leadership Camps: Effective Ways to Enact Long-Term Change?

Celeste A. Glover '16, Psychology, India H. Kerle '16, Psychology
ADVISOR: *Sally Theran, Psychology*

This past summer, Professor Theran initiated an evaluation of the Girls Leadership Summer Program. The purpose of this project is fully understand the efficacy of this leadership program. Parents and their daughters were surveyed before and after the camp. Girls responded to questions about depression, self-esteem, family bonding, and self-compassion. Parents responded to questionnaires about time spent with their daughters and how they helped their daughters resolve conflict. By analyzing these data, we hope to learn more about the efficacy of this program. In addition to analyzing various psychological measures, we will consider demographic factors that may or may not influence the efficacy of this leadership program.

Shyness, Love-Shyness, and Individual Differences in Sexual Attitudes and Behavior

Alyson B. Randall '16, Psychology
ADVISOR: *Jonathan Cheek, Psychology*

Shyness is the tendency to feel tense, worried, or awkward during social interactions, especially with unfamiliar people. The term "love-shyness" was coined by Gilmartin in 1987 to describe the relatively small percentage of American heterosexual men who are single and never married, not by choice, but because of their shyness. Based on his interpretations of American gender roles, Gilmartin believed that love-shyness was predominantly a male phenomenon. However, his argument that love-shyness does not affect women lacked empirical support. For example, Wilson (1958) found that the majority of 500 unmarried women listed shyness as their main barrier to marriage. Since Gilmartin, there has been limited research on shyness and sexuality. Therefore, the purpose of my research is to examine gender differences within the relationship between shyness and sexual attitudes and behaviors. In this presentation, results of this study will be discussed, along with limitations and conclusions.

Mind-Wandering Tendencies in Younger Adults

Anissa S. Sridhar '16, Neuroscience; Hannah W. Creutzfeldt '17, Neuroscience
ADVISOR: *Joseph Keller, Brain and Cognitive Sciences*

Mind wandering has been the term used to describe when you are not paying attention to the task at hand. Our project has studied how individual differences in the brain contribute to mind-wandering tendencies in younger (20- to 30-year-old) adults. Mindfulness, which is considered the opposite of mind wandering, has been shown to correlate with higher attention and focus and reduce task-unrelated thoughts. We have used cognitive assessments to determine individual levels of mindfulness and to assess certain cognitive abilities. We are using the Sustained Attention Response Task (SART) in coordination with functional magnetic resonance imaging (fMRI) to not only determine what differences can be seen on SART performance and task-unrelated thoughts but also what parts of the brain are activated when those thoughts occur. Our results should give further insight into the neural correlates of focus and attention, which is important in everyday life.

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