OUR SINCERE THANKS

Thank you to all those who advanced the work of our students through their time, educational expertise, and funding through a variety of opportunities designated for research support, including:

Anthropology Student Enrichment Fund
ASIANetwork Freeman Student-Faculty Program Grant Fund
Biology Student-Faculty Collaboration and Research Fund
Duffy Community Partnerships Program
Endowed Fund in Biology in honor of Carl and Susan Welty
The International Education Venture Fund
Kemler Fund for Model UN Program
Kenneth S. Kemmerer (1930) Endowed Memorial Student Research Fund
Charles G. Koch Student Research Colloquium and Speaker Series Grant Fund
Mikva-Cohen Endowed Internship Fund
Mouat and Whiteford Endowed Research Fund
David Norris (1992) Endowed Memorial Student Research Fund
Pakula Biomedical Fellowship Program
Psychology Student Research Fund
Sanger Summer Research Fund
Eloise Marston Schnaitter Endowed Wildflower Garden Fund
Janice and Gary Small Endowed Student Research and Travel Fund
Philip A. Sprague (1946) Endowed Student-Faculty Research Fund
Edward Stevens Research Award in Chemistry
Ivan Stone International Relations Internship Fund
Stutz Student Grant Fund
Beloit College Sustainability Fellows Program
The Weissberg Program in Human Rights

For generous support of designated student research funds, a special thanks to:

ASIANetwork
Margaret A. Cargill Foundation
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Elizabeth and Lynn Hiser
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Kenneth Kemmerer, Jr.
James S. Kemper Foundation
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Malcolm M. and Nancy Mouat
Takashi’66 and Sayoko Nagata
Robert’66 and Kathleen Norris
Lawrence’53 and Sheila Pakula
Elizabeth Peavy’49 *
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C. Allen Reed
James and Marjorie Sanger
Janice’62 and Gary’62 Small
Laurie Stickelmaier
Martha’59 and Alan’59 Stutz
The Weissberg Foundation
Marvin F. Weissberg
Nina V. Weissberg’84
Estate of Susan Welty
Linda M. Whiteford’69 and Douglas Uzzell
Michael’67 and Patricia Whiteford
Scott H. Whiteford’65

*Deceased Donor

Cover: Having received an International Education Grant supported by Elizabeth Chenoweth, class of 1955, Guadalupe Angeles’16 participated in an internship with Casa Hogar, Ayahuasca, Peru.
### Mathers, Pearsons Hall

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker &amp; Affiliation</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00</td>
<td>Carol Wickersham, Sociology &amp; Liberal Arts in Practice Center</td>
<td>Opening Remarks</td>
</tr>
<tr>
<td>9:05</td>
<td>Cassandra King</td>
<td>The Last People of Earth: Writing and Visualizing a Dystopian Novel</td>
</tr>
<tr>
<td>9:30</td>
<td>Leslie Wright</td>
<td>Representations of Helen and Penelope in Modern Literature</td>
</tr>
<tr>
<td>9:55</td>
<td>Rachel Yamron</td>
<td>Little Eyases: Diminutive Erotics in Boybands and Boys’ Companies</td>
</tr>
</tbody>
</table>

**BREAK FROM 10:20-10:35**

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker &amp; Affiliation</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:35</td>
<td>Bill Green, Anthropology, Museum Studies &amp; Logan Museum of Anthropology</td>
<td>Opening Remarks</td>
</tr>
<tr>
<td>10:40</td>
<td>Alexandra Flores</td>
<td>Bringing New Mexico Archaeology to Beloit: Reflecting on My First Archaeological Field Experience</td>
</tr>
<tr>
<td>11:05</td>
<td>Emma Frothingham &amp; Isaac Makos</td>
<td>History and Heritage in the Heartland: Museum Planning in Byron Illinois</td>
</tr>
<tr>
<td>11:30</td>
<td>Lauren Hartog</td>
<td>The Western Lens: Constructed Chinese Identities in 19th Century Photography</td>
</tr>
<tr>
<td>11:55</td>
<td>Dana Olesch</td>
<td>Defining Community Identity Using Llama Iconography in the Andean Region during the Late Intermediate Period (ca. AD 1000-1400)</td>
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</tbody>
</table>

**LUNCH FROM 12:20-1:05**

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker &amp; Affiliation</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:05</td>
<td>Catherine Orr, Critical Identity Studies</td>
<td>Opening Remarks</td>
</tr>
<tr>
<td>1:35</td>
<td>Melissa Korniejczuk</td>
<td>Children’s Engagement in Community Science: Lessons from Family Discovery Night</td>
</tr>
<tr>
<td>2:00</td>
<td>Kristen Rose McNeill</td>
<td>An Entrepreneurial Approach to Education</td>
</tr>
<tr>
<td>2:25</td>
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<td>No presentation</td>
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**BREAK FROM 2:50-3:05**

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker &amp; Affiliation</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:05</td>
<td>Scott Espeseth, Art &amp; Art History</td>
<td>Opening Remarks</td>
</tr>
<tr>
<td>3:10</td>
<td>Elizabeth Durham</td>
<td>Collaborative Printmaking for the Production of Color Etchings</td>
</tr>
<tr>
<td>3:35</td>
<td>Ellen Moses</td>
<td>Making Babies: Selecting Semen from Donor Catalogues at Sperm Banks</td>
</tr>
<tr>
<td>4:00</td>
<td>Max Brumberg-Kraus</td>
<td>Receive, Adapt, Critique: Dramatic Treatment as Literary Criticism in <em>Thrice Great Medea, a Trilogy of Plays</em></td>
</tr>
<tr>
<td>4:25</td>
<td>Fabiola Ramirez</td>
<td>Peacemaking: A Case Study of Burundi’s International and Domestic Organizations’ Roles</td>
</tr>
</tbody>
</table>

Mathers is on the first floor, southeast side of Peasons Hall.

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*Student Symposium, Spring 2016*
## Richardson Auditorium, MI (Morse-Ingersoll Hall)

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00</td>
<td>Jingjing Lou, Education &amp; Youth Studies: Opening Remarks</td>
</tr>
<tr>
<td>9:05</td>
<td>Fabiola Ramirez: Exploring the Relationship between Soccer and Higher Education among Young Latino Males</td>
</tr>
<tr>
<td>9:30</td>
<td>Izabella Berman: Sexism in the STEM Fields</td>
</tr>
<tr>
<td>9:55</td>
<td>Vanessa Pena: How Does Midwestern Learning Academy Incorporate Strategies around Mentorship that are Seen as Effective for At-Risk Girls</td>
</tr>
</tbody>
</table>

**BREAK FROM 10:20-10:35**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:35</td>
<td>Paul Dionne, Office of Academic Diversity and Inclusiveness: Opening Remarks</td>
</tr>
<tr>
<td>10:40</td>
<td>Annie Hagy: Whiteness through Stories Abroad</td>
</tr>
<tr>
<td>11:05</td>
<td>Fabiola Hernandez: The Allocation of Maternal Health Services Following Economic Reform and Development Policies: Peru as a Case Study</td>
</tr>
<tr>
<td>11:30</td>
<td>Alexis Sabor: Cross-Cultural Look at Sexual Health Resources: How Sexual Health Access Compares and Contrasts in the US and Ghana</td>
</tr>
<tr>
<td>11:55</td>
<td>Reid Caplan: Hikikomori: Public Perceptions on Japan's “Lost Generation”</td>
</tr>
</tbody>
</table>

**LUNCH FROM 12:20-1:05**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:05</td>
<td>Beatrice McKenzie, History: Opening Remarks</td>
</tr>
<tr>
<td>1:10</td>
<td>Isaac Makos: European Concepts of Warfare in Colonial North America</td>
</tr>
<tr>
<td>1:35</td>
<td>Kye Ingram: The Madam and Her Girls: An Introduction to the Blue Book Girls</td>
</tr>
<tr>
<td>2:00</td>
<td>Matthew Hodgkin, Hannah Arata, Nate Muckley, Alexander Schneider, Monica McKee, Stephanie Rosenwinkel, &amp; Laura Glick: Tales from Abroad: Digital Story Screening</td>
</tr>
<tr>
<td>2:25</td>
<td>Sarah Simms: Eating Language: The Transformation of Reality in Mahayana Sutras and the Catholic Eucharist</td>
</tr>
</tbody>
</table>

**BREAK FROM 2:50-3:05**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:05</td>
<td>Susan Furukawa, Modern Languages &amp; Literatures: Opening Remarks</td>
</tr>
<tr>
<td>3:10</td>
<td>Milica Mihajlovic: “He Who is Happy is Right”: Conflicting Concepts of Love in Leo Tolstoy’s <em>The Cossacks</em></td>
</tr>
<tr>
<td>3:35</td>
<td>Rikako Nishimura: In Pursuit of Moral Perfection: Tolstoy and the History of Vegetarianism in Russia</td>
</tr>
<tr>
<td>4:00</td>
<td>Reid Caplan: Yuru Chara: Examining the Shifting Roles of Local Mascots in Japan</td>
</tr>
<tr>
<td>4:25</td>
<td>Sasha Feinberg: Namahage: Make Way for the Modern Yokai</td>
</tr>
</tbody>
</table>

Richardson Auditorium is on the first floor, south side of Morse-Ingersoll Hall.
# Room 150, Science Center

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s) &amp; Department(s)</th>
<th>Title/Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00</td>
<td>Scott Bierman, Economics &amp; President</td>
<td>Opening Remarks</td>
</tr>
<tr>
<td>9:05</td>
<td>Emma Koeppel &amp; Lena Wright</td>
<td>Building Institutional Sustainability in Student Organizations: The Beloit Urban Garden</td>
</tr>
<tr>
<td>9:30</td>
<td>Cameron Dieter</td>
<td>“A Loathsome Plague Called Reaction”: Fear in Prescriptive Conservative Thought</td>
</tr>
<tr>
<td>9:55</td>
<td>Mary Fair Briggs</td>
<td>Cosmo Christians: Evangelicalism as Modern and Cosmopolitan in Seoul, South Korea</td>
</tr>
</tbody>
</table>

**BREAK FROM 10:20-10:35**

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s) &amp; Department(s)</th>
<th>Title/Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:35</td>
<td>John Kaufmann, Theatre, Dance &amp; Media Studies</td>
<td>Opening Remarks</td>
</tr>
<tr>
<td>10:40</td>
<td>Guadalupe Angeles</td>
<td>Border Crossdresser, Temporal Drag Queen, Part One: Memory and Radical Queer Identity in House of Larva Drag Cooperative</td>
</tr>
<tr>
<td>11:05</td>
<td>Max Brumberg-Kraus</td>
<td>Border Crossdresser, Temporal Drag Queen, Part 2: House of Larva and the Violation of Normative Time</td>
</tr>
<tr>
<td>11:30</td>
<td>Alice Gehrke</td>
<td>Finding Catharsis: A Practical and Theoretical Exploration of Drama Therapy</td>
</tr>
<tr>
<td>11:55</td>
<td>Olivia Clark</td>
<td>Hypermasculine Policing and Police Brutality in the U.S.</td>
</tr>
</tbody>
</table>

**LUNCH FROM 12:20-1:05**

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s) &amp; Department(s)</th>
<th>Title/Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:05</td>
<td>Cynthia McCown, English &amp; Theatre, Dance &amp; Media Studies</td>
<td>Opening Remarks</td>
</tr>
<tr>
<td>1:10</td>
<td>Heather MacIsaac, Allison Vance, Emma Keese, &amp; Sarah Pipal</td>
<td>Sustainability Mapping at Beloit College</td>
</tr>
<tr>
<td>1:35</td>
<td>Morgan Bakewell</td>
<td>Navigating Multiple Closets: Stigmatized Sexual Identity Negotiations in a Study Abroad Program's International Student Group</td>
</tr>
<tr>
<td>2:00</td>
<td>William Mauck</td>
<td>New (and Renewed) Fiction</td>
</tr>
<tr>
<td>2:25</td>
<td>Mary Fair Briggs</td>
<td>Transnational Whitenesses and How They Illuminate the Operation of Whiteness in the US</td>
</tr>
</tbody>
</table>

**BREAK FROM 2:50-3:05**

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s) &amp; Department(s)</th>
<th>Title/Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:05</td>
<td>Steven Huss-Lederman, Mathematics and Computer Science</td>
<td>Opening Remarks</td>
</tr>
<tr>
<td>3:10</td>
<td>Emma Koeppel</td>
<td>The Effect of Land Use on Nutrient Loads in Spring Brook, Beloit, WI</td>
</tr>
<tr>
<td>3:35</td>
<td>Kendra Keyes</td>
<td>Exploring Native Heritage and Cultures through Dance</td>
</tr>
<tr>
<td>4:00</td>
<td>Jieyang Qian</td>
<td>The Unimagined Web Service: Improving the Campus One Line of Code at a Time</td>
</tr>
<tr>
<td>4:25</td>
<td>Wally Wirchnianski</td>
<td>Humean Constructivism about Moral Facts: A Defense</td>
</tr>
</tbody>
</table>

Science Center 150 is on the first floor, Southwest side of the Center for the Sciences
<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00</td>
<td>Ted Gries, Chemistry</td>
<td>Opening Remarks</td>
</tr>
<tr>
<td>9:05</td>
<td>Benjamin Gentile</td>
<td>Evolution of Viviparity in the Genus <em>Liolaemus</em></td>
</tr>
<tr>
<td>9:30</td>
<td>Willow Macy</td>
<td>Morphological Effects of Sexual Selection Observed in Reproductive Morphology of Male <em>C. maculatus</em></td>
</tr>
<tr>
<td>9:55</td>
<td>George Gray</td>
<td>Use of Urea to Probe Conformational Change in <em>6-Phosphogluconate Dehydrogenase</em></td>
</tr>
<tr>
<td></td>
<td><strong>BREAK FROM 10:20-10:35</strong></td>
<td></td>
</tr>
<tr>
<td>10:35</td>
<td>Kristin Bonnie, Psychology</td>
<td>Opening Remarks</td>
</tr>
<tr>
<td>10:40</td>
<td>Alison Wood</td>
<td>The Influence of Bass Level and Familiarity on Ratings of Power in Music</td>
</tr>
<tr>
<td>11:05</td>
<td>Gabriella Onikoro-Arkell &amp; Elizabeth Hitchcock</td>
<td>Hypermascullinity in the Realm of Female Desire</td>
</tr>
<tr>
<td>11:30</td>
<td>Sarah Keller</td>
<td>Volunteer Perceptions of Dignity</td>
</tr>
<tr>
<td>11:55</td>
<td>Laura Lehmann</td>
<td>Women in Law Enforcement and the Military: The Invisible Emotional and Social Struggles</td>
</tr>
<tr>
<td></td>
<td><strong>LUNCH FROM 12:20-1:05</strong></td>
<td></td>
</tr>
<tr>
<td>1:05</td>
<td>Rachel Bergstrom, Biology</td>
<td>Opening Remarks</td>
</tr>
<tr>
<td>1:10</td>
<td>Rikley Buckingham &amp; Tiannong Dong</td>
<td>Spatial Calibration Using Saturn’s Moons and Identification of Clumps in the F Ring with Brightness Plots in Cassini Images</td>
</tr>
<tr>
<td>1:35</td>
<td>Ian Bracket</td>
<td>Canopy Coverage, <em>E. resinifera</em> and <em>L. camara</em> Abundance are Implicated in <em>P. australus</em> Habitat Abandonment and Selection</td>
</tr>
<tr>
<td>2:00</td>
<td>Jacob Gray</td>
<td>Developing a Model for Cellular Neuroscience at Beloit College</td>
</tr>
<tr>
<td>2:25</td>
<td>Olivia Kline</td>
<td>The Insecticide Imidacloprid is a Probable Contributor to Colony Collapse Disorder in European Honeybees (<em>A. mellifera</em>)</td>
</tr>
<tr>
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<td><strong>BREAK FROM 2:50-3:05</strong></td>
<td></td>
</tr>
<tr>
<td>3:05</td>
<td>Greg Buchanan, Psychology</td>
<td>Opening Remarks</td>
</tr>
<tr>
<td>3:10</td>
<td>Griffin Salisbury</td>
<td>Implicit Racial Bias and Drugs</td>
</tr>
<tr>
<td>3:35</td>
<td>Kayla Syrocki</td>
<td>Perceptions of Men's Sexual Assault Education</td>
</tr>
<tr>
<td>4:00</td>
<td>Staci Gusakova</td>
<td>Are You Hearing Me? Role of Accurate Perception and Compatibility of Sexual Communication in Monogamous Relationships</td>
</tr>
<tr>
<td>4:25</td>
<td>Hailey Stevenson</td>
<td>Connecting Home, School, and Reading</td>
</tr>
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Science Center 249 is on the second floor, Southwest side of the Center for the Sciences
# Room 349, Science Center

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00</td>
<td>Carl Mendelson, Geology:</td>
<td>Opening Remarks</td>
</tr>
<tr>
<td></td>
<td>Arianna Cocallas</td>
<td>Understanding the Export of DOC in Burned/Unburned Catchments in the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Boreal Forests of Interior Alaska</td>
</tr>
<tr>
<td>9:30</td>
<td>Tiannong Dong</td>
<td>Evaluating the Reliability and Reproducibility of Handheld X-Ray</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fluorescence (XRF) Spectrometry on Drill Core</td>
</tr>
<tr>
<td>9:55</td>
<td>Allison Vance</td>
<td>Evolution of Shock Melt Compositions in Lunar Regolith</td>
</tr>
</tbody>
</table>

**BREAK FROM 10:20 - 10:35**

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:35</td>
<td>Pablo Toral, Political Science &amp;</td>
<td>Opening Remarks</td>
</tr>
<tr>
<td></td>
<td>International Relations:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Expanding the Comfort Zone: Improving Central Plant Chiller Efficiency</strong></td>
</tr>
<tr>
<td>11:05</td>
<td>Clare Lanaghan</td>
<td>Environmental Apathy: Could Art Be the Answer?</td>
</tr>
<tr>
<td>11:30</td>
<td>Maggie Warren</td>
<td>Creating the “Good Oak Display” for the Aldo Leopold Nature Center</td>
</tr>
<tr>
<td>11:55</td>
<td>Arianna Cocallas &amp; Lena Wright</td>
<td>Bursting the Bubble: Creating a Revolving Loan Fund for the City of Beloit</td>
</tr>
</tbody>
</table>

**LUNCH FROM 12:20 - 1:05**

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:05</td>
<td>Lindsay Chapman, Sustainability</td>
<td>Opening Remarks</td>
</tr>
<tr>
<td></td>
<td>Coordinator:</td>
<td></td>
</tr>
<tr>
<td>1:10</td>
<td>Arianna Cocallas, Megan Kerr,</td>
<td>Lighting Inventories of Beloit College Buildings: What We Know and How</td>
</tr>
<tr>
<td></td>
<td>Skylar Miller, Nissa Parker</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&amp; Miriam Wilch</td>
<td>We Can Change</td>
</tr>
<tr>
<td>1:35</td>
<td>Carl-Lars Engen</td>
<td>Tying It All Together: A New Approach to Sustainability Media and Branding</td>
</tr>
<tr>
<td>2:00</td>
<td>Jane Hanebuth</td>
<td>Getting Off The Grid: A Hands-On Experience in Renewable Energy</td>
</tr>
<tr>
<td>2:25</td>
<td>Mingyi Zhang</td>
<td>Making Beloit a Zero Waste Campus</td>
</tr>
</tbody>
</table>

**BREAK FROM 2:50 - 3:05**

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:05</td>
<td>Yaffa Grossman, Biology:</td>
<td>Opening Remarks</td>
</tr>
<tr>
<td>3:10</td>
<td>Sarah Mueller &amp; Rose Richard</td>
<td>Bringing the Food Recovery Network to Beloit College</td>
</tr>
<tr>
<td>3:35</td>
<td>Estiaque Haidar, Shourov &amp; Thomas</td>
<td>Calculating the Energy Cost of the Science Center Door</td>
</tr>
<tr>
<td></td>
<td>Porkka</td>
<td></td>
</tr>
<tr>
<td>4:00</td>
<td>Mary Breen-Lyles &amp; Dinesh McGinty</td>
<td>Modeling Solar Sensible Load with a Spreadsheet</td>
</tr>
</tbody>
</table>

Science Center 349 is on the third floor, Southwest side of the Center for the Sciences.
# Wood Room, Mayer Hall

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00</td>
<td>Dan Bartlett, Logan Museum</td>
<td>Opening Remarks</td>
</tr>
<tr>
<td>9:05</td>
<td>Enid Góngora</td>
<td>Acculturative Depression: Latinas Battle High Rates of Depression</td>
</tr>
<tr>
<td>9:30</td>
<td>Koont Htar</td>
<td>Facts for Prospective Students: A Semester Helping College Guides Market</td>
</tr>
<tr>
<td>9:55</td>
<td>John DiIorio &amp; James McFeeters</td>
<td>Creating the Symposium System</td>
</tr>
</tbody>
</table>

**BREAK FROM 10:20-10:35**

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Topic</th>
</tr>
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<tbody>
<tr>
<td>10:35</td>
<td>Jon Urish, Development and Alumni Relations</td>
<td>Opening Remarks</td>
</tr>
<tr>
<td>10:40</td>
<td>Trevor Kenahan</td>
<td>The Paradox of War &amp; Politics</td>
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<tr>
<td>11:05</td>
<td>Riley Budke</td>
<td>Creativity and Justice: The Arts in Plato’s Republic and Laws</td>
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<tr>
<td>11:30</td>
<td>Ryan Hazuka</td>
<td>Hierarchical Structure in John Locke’s Theory of Property</td>
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<td>11:55</td>
<td>Stafford Perry</td>
<td>Malcolm, Martin, and Plato’s Cave: Evaluating Success</td>
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**LUNCH FROM 12:20-1:05**

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1:05</td>
<td>Meghan Dowell, Morse Library</td>
<td>Opening Remarks</td>
</tr>
<tr>
<td>1:10</td>
<td>David Lauer</td>
<td>Counterterror Discourse and the Erosion of Human Rights Norms</td>
</tr>
<tr>
<td>1:35</td>
<td>Jingwei Jia</td>
<td>U.S.-China Relations and Cybersecurity</td>
</tr>
<tr>
<td>2:00</td>
<td>Joseph Brambil</td>
<td>Women as Policy Leaders in Federal and State Legislatures</td>
</tr>
<tr>
<td>2:25</td>
<td>Andreina Patilliet</td>
<td>Food Insecurity: An Analysis of Amartya Sen’s Entitlement Approach</td>
</tr>
</tbody>
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**BREAK FROM 2:50-3:05**

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Topic</th>
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<tbody>
<tr>
<td>3:05</td>
<td>Erin Munro, Mathematics &amp; Computer Science</td>
<td>Opening Remarks</td>
</tr>
<tr>
<td>3:10</td>
<td>Collin Reid</td>
<td>The Varieties of Populism: Where and How We See the Politics of “Ordinary People”</td>
</tr>
<tr>
<td>3:35</td>
<td>Izak Harvey-Wolff</td>
<td>Hate Speech and the Marketplace of Ideas</td>
</tr>
<tr>
<td>4:00</td>
<td>Jake Dragonetti</td>
<td>Speech Protection and Protection from Speech: Forming Constitutional College Codes Regarding Hateful Expression</td>
</tr>
<tr>
<td>4:25</td>
<td>Jonathan Harsh</td>
<td>Faith Versus Politics: Arguing for the Moderate Separation Between Church and State</td>
</tr>
</tbody>
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Wood Room is on the second floor, center of Mayer Hall
of my every-day interactions were impacted by the interactionist lens for my autoethnographic senior thesis analyzing these experiences through a symbolic heteronormativity in varying sociocultural locations. Yet, as do the nature of the ‘closets’ imposed by identities vary across culture, class, nationality, and race, students. These experiences taught me gay male relationships I formed with other gay international to find my motivations in self-presentation and the nature of interpretation to the audience. Prepare for either possibility!

**Guadalupe Angeles’16**

Chicago, IL, USA

Majors: Comparative Literature; Critical Identity Studies

Sponsor: John Kaufmann

**Border Crossdresser, Temporal Drag Queen, Part One:**

**Memory and Radical Queer Identity in House of Larva Drag Cooperative**

In Fall 2014, Max Brumberg-Kraus and Guadalupe Angeles got on the C Haus stage in cheap makeup, plastic insects, sewn-together rags and bits of trash bag and lip-synched to a medley of music spanning from Bizet’s Carmen to the crude ballads of transgender, punk rocker Jayne County. Thus House of Larva: Drag Cooperative was born!

In part one of this symposium, Angeles explores the individual as a carrier of borders with a body of perpetual contradiction. Using memoirs and exploration of queer Chicana identity, Angeles demonstrates how performance becomes an autobiographical space for memory that reflects a collective and individual history continually reshaping perception of identity. In these memories, borders dwindle and emerge creating queer bodies that both perform and disrupt common narratives and linear thinking. Through performances such as “Strawberries and Crème,” “L’Amour de Toilettes: a Period Piece,” and “Slut Shaman,” the internalization, obstruction, and creation of borders is realized through a queer Chicana body as radically performed in House of Larva.

**Hannah Arata’17**

See page 35

**Morgan Bakewell’16**

Seattle, WA, USA

Major: Education and Youth Studies: Youth & Society

Minor: Chinese

Sponsor: Jingjing Lou

**Navigating Multiple Closets:**

**Stigmatized Sexual Identity Negotiations in a Study Abroad Program’s International Student Group**

In this presentation I will recount experiences negotiating a stigmatized sexual identity while studying abroad in China. This process was on-going—an ever present aspect of social interaction—impacted not only by interests in my own well-being; I was also surprised to find my motivations in self-presentation and the nature of my every-day interactions were impacted by the relationships I formed with other gay international students. These experiences taught me gay male identities vary across culture, class, nationality, and race, as do the nature of the ‘closets’ imposed by heteronormativity in varying sociocultural locations. Yet, analyzing these experiences through a symbolic interactionist lens for my autoethnographic senior thesis has taught me more about myself than any distinct cultural Other. As I am experimenting with various presentational forms, my symposium may touch explicitly on all of these areas, or I may just read a series of autoethnographic vignettes and leave a large amount of interpretation to the audience. Prepare for either possibility!

**Jere Bauer’18**

Oregon, WI, USA

(with Shujie Xu)

Major: Physics

Sponsor: Paul Stanley

**Heat Pumps and the Rock River: Mediating Temperatures in the Powerhouse**

Beloit College is currently in the process of turning an old Alliant Energy power plant into a new sport center and student union. Our team researched and analyzed the feasibility of the proposed heating and cooling system. In the early proposed plan for the Powerhouse there was an idea to use the Rock River as a heat source and sink to both heat and cool the building. We will present on some of the consequences of these plans--- engineering challenges, limitations because of physical laws, and possible costs--- and contrast the use of a heat pump with other heating and cooling methods. The results of this work can help frame further actions the College can take in creating an energy efficient and innovative recreation center.

**Izabella Berman’16**

Libertyville, IL, USA

Major: Education and Youth Studies: Youth & Society

Sponsor: Jingjing Lou

**Sexism in the STEM Fields**

In this work three schools of higher education in different parts of the country are visited for variable amounts of time to study the current treatment of women in the STEM fields, in particular, the field of physics. An undergraduate female physics major, planning to attend graduate school the following year, works in the physics laboratories and classrooms of one small liberal arts school in the Midwest, one ivy league research university on the east coast, and one large research university in the south to observe the hidden and obvious forms of sexism still apparent in a work field that has been known to consist mostly of men.

Observations from the three locations concerning the treatment of women are then compared to extensive literature studies on the same issues experienced by the undergraduate, and conclusions as to whether the issues are solved, and if not, steps to resolve or better these issues are finally discussed.

While it is fair to note that these observations may contain an inherent bias to the subjects, the research conducted here is aimed to be as un-bias as possible, going through many reviews and consulting peer reviewed articles for conclusions. Alternatives to claims
made in the study are addressed as well to obtain the fullest understanding of the social, psychological and biological constructs that contribute to the continuation of sexism in the fields of STEM.

Ian Brackett'16 Knox, ME, USA
Major: Molecular, Cellular, & Integrative Biology
Sponsor: Rachel Bergstrom

**Canopy Coverage, E. resinifera and L. camara Abundance Are Implicated in P. australis Habitat Abandonment and Selection**

This study examines the role that canopy coverage and abundance of the tree Eucalyptus resinifera and the bush Lantana camara play in habitat abandonment in a wet tropics subpopulation of yellow-bellied gliders (Petaurus australis) in northeastern Queensland. These factors were selected because of their previously reported importance in healthy yellow-bellied glider habitats. Habitat transect data were examined with densiometry and visual assessment from four locations representing three habitat types: abandoned habitats, non-glider habitats, and active habitats. The results show that abandoned habitats have reduced canopy coverage, while non-glider habitats have a low E. resinifera and high L. camara abundance. Reduced canopy coverage likely inhibits glider mobility, while a high abundance of L. camara has been connected to an increased risk of fire, which could potentially destroy the flammable E. resinifera populations in an area. Given how vital E. resinifera sap is to yellow-bellied glider diet, a reduction in its abundance could cause a location to be unsuitable for habitation. This study has implications for the conservation of yellow-bellied gliders in the wet tropics, with results that suggest that the management of L. camara and the preservation of E. resinifera are of vital importance in conservation efforts.

Joseph Brambil'16 New York, NY, USA
Majors: Political Science; Sociology
Sponsor: Georgia Duerst-Lahti

**Women as Policy Leaders in Federal and State Legislatures**

Hierarchical and other organizational structures of Congress put female legislators at a disadvantage in their capacity to set substantive policy agendas that benefit the lives of women constituents. Furthermore, state-level women legislators face varied restrictions on their freedom and capacity to sponsor bills of substantive interest to women and to use roll call voting to their advantage. While party and committee leadership shape all female legislators’ flexibility in their legislative behavior, party affiliation and the differences between the organizational structure of the Democratic Caucus and the Republican Conference manifest different institutional constraints on female legislator’s substantive representation. My original research based upon elite interviews and participant observation builds on the above premises, exploring such dynamics in the Wisconsin State Assembly and Senate. I predict that while women of both parties will face similar constraints pursuing policy in committees, and will face similar obstacles in the legislature related to gender stereotypes, Democratic women will have more flexibility than their Republican colleagues. That is, differences in the party goals and organization structures give Democratic female legislators greater latitude to pursue their own legislative initiatives on behalf of women.

Mary Breen-Lyles'18 Green Bay, WI, USA
(with Dinesh McGinty)
Major: Physics
Sponsor: Paul Stanley

**Modeling Solar Sensible Load with a Spreadsheet**

We seek to model the thermal solar effects on the proposed Powerhouse building project. We incorporate data on the Sun's position throughout the day and year, heat transfer between the inside and outside walls, and the internal air mass. We use Microsoft Excel and information gathered from suncalc.net and pveducation.org. Our Excel spreadsheet allows the user to input a date, dimensions, average inside temperature of building, and latitude to see how much heat enters and exits within the Powerhouse. We also configured this model on the spreadsheet to give it the ability to accurately predict heat flux and solar insolation for any generic building. This portable software will be made available to the public as a free user adjustable tool for energy computations; we use the tool to predict heating loads on the future Powerhouse.

Mary Fair Briggs'16 Moretown, VT, USA
Major: Anthropology, Religious Studies
Sponsor: Natalie Gummer

**Cosmo Christians: Evangelicalism as Modern and Cosmopolitan in Seoul, South Korea**

This paper will explore the embodied and vocalized religious expressions of university age evangelical Christians in two faith communities in Seoul. Through focusing on physical expressions of religiosity such as shouting out prayers and holdings hands to the chest while praying, I argue that young evangelical Koreans use these expressions to cultivate and demonstrate their cosmopolitan and modern identities and also challenge traditional gender norms in the process.

In the U.S., many liberal Americans view evangelical Christianity as conservative and anti-progressive (Harding 2000, xv.) I argue that this reductive categorization of fundamentalist Christianity as antimodern does not exist in South Korea. This paper aims to show that for young evangelicals in Seoul,
fundamentalist Christianity is perceived differently than in the US, because its South Korean practitioners view themselves as at the forefront of modernity while their non-Christian peers remain behind in an “oppressive” traditional Korea. These religious expressions are part of a larger performative cultural style that worshippers use to signal their belonging with other evangelicals, maintain their difference from non-Christian Koreans, and to assert an elite status as cosmopolitans.

**Transnational Whitenesses and How They Illuminate the Operation of Whiteness in the US**

During the Sanger Scholar summer program I spent eight weeks researching transnational whitenesses with Dr. Anderson Levy. Transnational whiteness as perspective allows us to look past our US-centered view of what it means to be white. By examining whitenesses in other contexts, we can more deeply explore how whiteness is reproduced in the US and deconstruct Eurocentric ideas about whiteness. For the purposes of this research, it was useful to understand that whiteness is based on more than someone’s physical appearance. In Ahmed’s article “A Phenomenology of Whiteness” she defines whiteness as an orientation to the world that places people in different positions and makes particular things accessible to some but not others (2007). The point of examining whitenesses in contexts beyond the US, is to bring whiteness and its operation in the US into view. “Seeing” whiteness allows us to denaturalize its operation, that is, to realize that the ways in which it operates in the US is not normal and are in fact dependent on specific histories. This interrogation of whiteness is crucial to decentering it. The final product of this research was a literature review that included sources about whitenesses in Japan, Indonesia, South Africa, New Zealand, Sweden, and other nations. I also wrote a reflection on what the impact that this research had on my own understanding of my whiteness. Studying transnational whiteness not only gave me an opportunity to learn about whitenesses outside of the United States but also made me reflect upon my own whiteness constantly. To narrow the scope of this presentation, I will focus on three aspects of my research on transnational whiteness: white beauty, exceptionalism from racism, and white melancholia.

**Border Crossdresser, Temporal Drag Queen, Part 2: House of Larva and the Violation of Normative Time**

In part two of this symposium, Brumberg-Kraus uses the theoretical frameworks of queer theorists Carolyn Dinshaw, Elizabeth Freeman, and Lee Edelman to examine the function of time in four of House of Larva’s productions: “Carnal Instinct: Dinner for One”, “Strawberries and Créme,” “L’Amour de Toilettes: a Period Piece,” and “Slut Shaman.” Specifically, how do these performances explore queer history and temporality? How can drag foster an embodied relationship to gender/sexual “others” from the past? And how can the appropriation of historical signs disrupt or critique the present? In looking at House of Larva’s parodies of both normative and heteronormative models of time passing, Brumberg-Kraus relates the duos work to a broader context of disjointed temporality in queer art.

This symposium arrives in conjunction with a thesis on performances of queer temporality and a CRIS special project on Chicano and Queer Identity. Using costume, music, and video, this presentation by the House of Larva Drag Co-op explores the formative role of drag performance in two students’ lives, both academically and personally.
During my first semester at Beloit College, I took a class about Medea with Dr. Lisl Walsh, and I began writing a play called Thrice Great Medea. Three years later, Walsh and I collaborated as Sanger Fellows on an interdisciplinary research project about Seneca’s play. We sought to analyze the text in performance: how theatre architecture and audience norms in ancient Rome would affect the play and how various theatrical communities reinterpreted and reproduced Seneca’s drama throughout history. Finally, we designed a hypothetical production of the play in order to show how dramatic adaptation can be a useful— even necessary— tool for analysis of ancient tragedy.

This presentation is about writing Thrice Great Medea as one response to Seneca’s problematic text. I hope to demonstrate the academic worth and intellectual rigor of dramatic adaptation in the fields of classics and comparative literature. As a playwright, I am adamant that paying attention to the transhistorical context of our plays is our responsibility and will only improve the quality of our writing.

Rikley Buckingham’17 Portland, OR, USA
(with Tiantong Dong)
Majors: Mathematics; Physics
Sponsor: Britt Scharringhausen

Spatial Calibration Using Saturn’s Moons and Identification of Clumps in the F Ring with Brightness Plots in Cassini Images

Saturn’s F ring is a narrow ring made of small particles that is tilted 0.0064° in relation to main rings. Cassini is an unmanned spacecraft, currently orbiting Saturn. Bright features orbiting through the F ring, known as clumps, represent high-density particle regions in the F ring. Previous researchers have studied images from Earth-based telescopes or Cassini when it flies above or below the ring plane. We studied high-resolution images (1024 × 1024 pixels) that were captured by the narrow-angle camera (NAC) as Cassini crosses the ring plane. We used brightness plots that total the brightness for every x-position in Cassini images to identify clumps. These images provide new insights on the vertical structure of the F ring, but cover only about one tenth of the radius of Saturn’s rings, due to the narrow field of view of NAC (0.35°). To determine which part of the ring is captured in the images and then make usef ul observations, we used the known ephemeris positions of Saturn’s moons, including Rhea, Dione, Mimas, and Enceladus, as reference points when they appear in the images. We adopted an approach similar to the Circular Hough Transform (CHT) to locate the centers of Saturn’s moons. Combined with ephemeris positions and the detected centers of the moons, we are able to express the offset right ascension (dRA) of identified clumps from brightness plots.

Riley Budke’16 Madison, WI, USA
Major: Political Science
Sponsor: Jill Budny

Creativity and Justice: The Arts in Plato’s Republic and Laws

Plato’s treatment of the expressive arts, and particularly poetry, has been analyzed by many scholars, who have argued as to whether or not it should be taken at face value. However, previous literature on the subject has focused largely on the Republic, while failing to take into account the discussion of the arts in Plato’s less-famous dialogue, the Laws, which treats them similarly but with some key differences.

My work examines the arts in both the Republic and the Laws in order to more comprehensively understand Plato’s conception of the arts and their place in a just society. Specifically, I look at the sections of each dialogue which directly discuss the arts, as well as the narrative devices and characterizations Plato uses. I argue that Plato’s treatment of poetry and other arts, as well as his own use of poetic devices, indicates a view of art as a powerful force that is dangerous if given free reign, but beneficial and in fact necessary to a just and virtuous society when created under certain restrictions and with particular goals.

This provides a new perspective on how Plato deals with the arts, and in doing so not only enhances our understanding of the views of a great political philosopher, but provides a new lens with which we can examine modern conceptions of art and its place in society.

Reid Caplan’16 Piermont, NY, USA
Majors: Health and Society; Japanese Language and Culture
Sponsor: Ron Nikora

Hikikomori: Public Perceptions on Japan’s “Lost Generation”

Hikikomori, roughly translating to “pulling inward” in Japanese, refers to a condition of social withdrawal in Japanese society. In the first decade of the 2000’s, the discourse surrounding hikikomori reached that of a social crisis, resulting in a policy passed in 2010 mandating each prefecture in Japan to build a hikikomori support center to address this issue. However, even with such strong focus nationally and internationally on rehabilitating hikikomori, little consensus has been reached on what contributes to the condition and what is the best method of treating it.

While much attention has been given to the scholastic community and to media experts on factors related to the causes and treatment of hikikomori, little research has been devoted to what an average Japanese person perceives about the condition. My research surveys the attitudes of Japanese university students concerning the
causes, treatments, and societal significance of hikikomori, and contrasts these perspectives with those presented about hikikomori in academic literature and mass media. I also examine whether or not the implementation of the hikikomori support center policy has led to an increase in knowledge of the general public surrounding types of treatment options for hikikomori and where to access them.

Reid Caplan’16  
Piermont, NY, USA
Majors: Health and Society; Japanese Language and Culture
Sponsor: Susan Furukawa

Yuru Chara: Examining the Shifting Roles of Local Mascots in Japan

Yuru Chara refer to a type of local mascot character in Japan. Characterized by a laid-back, unsophisticated appearance, they were originally created by municipal governments as a low-budget means of promoting tourism and regional pride in their areas. However, along with their rise to mainstream popularity in 2007, certain Yuru Chara become internationally recognizable, the way that Japanese people interact with these characters has also begun to shift.

This research examines what the role of Yuru Chara is in present-day Japan, and how this role might contrast with the original reasons for their creation. It also focuses on what factors in Japanese society have led to the boom in popularity for these characters. In order to gauge how prevalent Yuru Chara are in the daily life of Japanese people, I traveled across Japan and observed where and how often I noticed local mascots. I also informally interviewed residents of Japan to learn how others perceived these characters. My research culminated in a trip to the World Character Summit, an annual Yuru Chara festival, to find out how Yuru Chara performed and were received by others when taken out of their hometowns.

Olivia Clark’16  
Portland, OR, USA
Major: Critical Identity Studies
Sponsor: Georgia Duerst-Lahti

Hypermasculine Policing and Police Brutality in the U.S.

Much of the conversation and debate surrounding police brutality in the U.S. focuses solely on race. While race is certainly a major factor at play, it is also important to account for the fact that those killed by police are disproportionately male as well as disproportionately black. Not only are the majority of victims male, but so are the majority of police officers. Since race, gender, and all other aspects of identity combine and intersect in different ways to affect how one is treated by society, an analysis that attempts to separate the effects of race from other aspects of identity will inevitably fail to account for the whole picture. With that in mind, what can an analysis of masculinity and policing contribute to understanding how and why racist police brutality occurs? What changes does this analysis suggest to begin to rectify the issue?

Arianna Cocallas’16  
Anchorage, AK, USA
(with Lena Wright)
Major: Environmental Geology
Minor: Biology
Sponsor: Pablo Toral

Bursting the Bubble: Creating a Revolving Loan Fund for the City of Beloit

On Beloit College campus, the Revolving Loan Fund provides the initial capital needed to implement environmentally focused projects the college would not normally pursue due to high start-up costs and longer return-on-investment. The RLF allocates a portion of the savings produced by the project back into the fund, hence the revolving nature. This Environmental Studies Capstone project worked with the City of Beloit Chamber of Commerce to explore the possibility of a Revolving Loan Fund for businesses in Beloit. Working with local small businesses, three potential project case studies were identified, and models were created that showed the payback these environmentally-focused projects could produce. A potential governing document was written after research into existing RLFs for other Chambers, schools and cities. This symposium will focus on the challenges and rewards of working with the greater City of Beloit and local businesses, balancing multiple stakeholder needs in a community-based project, and the intersections of the environment and economics in projects such as a Revolving Loan Fund.

Arianna Cocallas’16  
Anchorage, AK, USA
Major: Environmental Geology
Minor: Biology
Sponsor: Lindsay Chapman

Lighting Inventories of Beloit College Buildings: What We Know and How We Can Change

This year the Office of Sustainability’s Energy Team has been hard at work documenting the interior lighting of 30 buildings from across campus. Through the Facilities Department, we are working with a professional energy auditor to determine retrofit lighting options for a variety of buildings from the College’s oldest Middle College to some of the College’s newer residential buildings like Aldrich, Chapin and Brannon. The Energy Team will present their methodology and also place their results in the context of impacts to campus electricity and natural gas usage. Want to gain a better understanding of campus wide energy usage and what can be done personally to save energy on the Beloit College campus? Always wondered about the energy savings impact of LEDs or occupancy sensors? Come
learn from the Sustainability Office's Energy Team, as they present their results.

**Arianna Cocallas'16**
**Anchorage, AK, USA**
Major: Environmental Geology
Minor: Biology
Sponsor: Sue Swanson

**Understanding the Export of DOC in Burned/Unburned Catchments in the Boreal Forests of Interior Alaska**

Alaska’s boreal forest is at risk. Warming due to climate change is amplified in high latitude ecosystems causing the region to warm twice as quickly as the global average. Normally a natural part of the boreal forest’s ecosystem trajectory, an increase in the severity and frequency of wildfires has begun to dramatically change the ecosystem, impacting not only the terrestrial aspects, but also the aquatic. The boreal forest is located in areas that contain headwater streams, which act as a conduit connecting the terrestrial ecosystem to the aquatic via groundwater and runoff. Due to the rapid state of change occurring within the boreal forests currently, understanding how dissolved organic carbon (DOC) is exported from burned and unburned catchments is key to establishing management practices. The boreal forest is ecologically unique as a majority of its carbon is stored not as woody biomass locked away within tree trunks, but as soil organic carbon. As groundwater and runoff interact with soil organic carbon it is dissolved and becomes DOC eventually entering the stream network. I worked as an undergraduate research assistant through a Research Experience for Undergraduates (REU) with the Harms Lab at the University of Alaska - Fairbanks. Through this research I studied two catchments one burned and another unburned. We maintained EXO sonde sensors that recorded the concentration of DOC in each stream every 15 minutes throughout the 2015 summer field season. The sensors provided an extremely high resolution dataset that show relationships between biological and physical factors. Spatial analysis results provide explanations to complement site specific data.

**John Dilorio’18**
**San Diego, CA, USA**
(with James McFeeters)
Major: Computer Science
Sponsor: Steven Huss-Lederman

**Creating the Symposium System**

This year’s student symposium nomination and registration process was organized through a new website that was developed over the past seven months. Although old software already existed for the Symposium, there was a desire for new features, patched security vulnerabilities, and a general modernized update to the system. Our team was tasked with implementing the desired changes, and as we wanted to work with more modern languages and frameworks, we chose to write the new software from scratch, rather than modifying the original code. We elected to write the backend of the website in Python and used the Flask framework to integrate support for our RESTful architecture, user authentication on logins, and server creation. We also used SQLAlchemy in conjunction with Flask to easily write SQL queries and functions to interact with our MySQL database. For the frontend of the website, we used Angular.js as our main framework to route page requests, update DOM elements, and send AJAX requests to our Flask server. We also included the jQuery library for additional Javascript functionality and the Bootstrap 3 CSS library for an overall aesthetic design. While the majority of the process involved planning, programming, and testing the Symposium system, our team encountered many unexpected issues both during the deployment process and while the site was live. This presentation will go over the design of the new symposium website and the decisions we made during its development.
Evaluating the Reliability and Reproducibility of Handheld X-Ray Fluorescence (XRF) Spectrometry on Drill Core

An X-ray fluorescence (XRF) log is a series of plots that shows the variation of the abundances of major and trace elements with depth in a drilled core. This study examined a 390-foot-long core drilled in Winnebago County, northeastern Wisconsin, covering Cambrian through Ordovician strata. Previous studies have generated an XRF log on this core with a handheld XRF spectrometer (Thermo Scientific Niton XL3t GOLDD+). In order to evaluate the use of handheld XRF in producing reliable and reproducible abundances of elements, this study re-generated a complete XRF log at 1-foot intervals using the same model of handheld XRF and following the same protocol; an agreement at 1-foot resolution between these two series of XRF logs is presented in this study. Furthermore, the XRF log of the dominant, naturally-occurring radioactive element K is strongly correlated to a gamma-ray log, which is a plot that shows the gamma-ray intensity over depth in drill core. To evaluate the precision and accuracy of the handheld XRF method, repeat analyses on three standard reference materials (USGS BIR-1, USGS W2, and NIST-2709a) over six months using factory calibration show that the measurements on a number of major and trace elements are highly precise, including Al, Si, Ca, Mn, Fe, and Zr, in spite of relatively inaccurate measurements. Rapidly-generated, cost-effective, precise measurements of major and trace elements by handheld XRF can inform studies correlating lithostratigraphic units, identifying unconformities, and evaluating trace metal sources of aquifer units.

Spatial Calibration Using Saturn’s Moons and Identification of Clumps in the F Ring with Brightness Plots in Cassini Images

Saturn’s F ring is a narrow ring made of small particles that is tilted 0.0064° in relation to main rings. Cassini is an unmanned spacecraft, currently orbiting Saturn. Bright features orbiting through the F ring, known as clumps, represent high-density particle regions in the F ring. Previous researchers have studied images from Earth-based telescopes or Cassini when it flies above or below the ring plane. We studied high-resolution images (1024 × 1024 pixels) that were captured by the narrow-angle camera (NAC) as Cassini crosses the ring plane. We used brightness plots that total the brightness for every x-position in Cassini images to identify clumps. These images provide new insights on the vertical structure of the F ring, but cover only about one tenth of the radius of Saturn’s rings, due to the narrow field of view of NAC (0.35°). To determine which part of the ring is captured in the images and then make useful observations, we used the known ephemeris positions of Saturn’s moons, including Rhea, Dione, Mimas, and Enceladus, as reference points when they appear in the images. We adopted an approach similar to the Circular Hough Transform (CHT) to locate the centers of Saturn’s moons. Combined with ephemeris positions and the detected centers of the moons, we are able to express the offset right ascension (dRA) of identified clumps from brightness plots.

Speech Protection and Protection from Speech: Forming Constitutional College Codes Regarding Hateful Expression

Despite various attempts by higher-education institutions across the country to address instances of hateful expression on their campuses, many members of these communities express high levels of dissatisfaction with the campus codes regulating such actions. The overall takeaway from existing literature is unclear: scholars offer a variety of paths toward the supposed “solution,” often poking holes in the arguments of others to support their own ideas, only to encounter strong counterarguments in subsequent literature.

This paper provides an opportunity to break through this stagnant debate by proposing a new approach that subdivides college campuses into different zones and then assigns particular regulations for the individual locations. More specifically, this paper argues that hateful expression can be constitutionally regulated while more effectively meeting the demands of students through the application of the Captive Audience Doctrine and Public Forum Doctrine in college dormitories, the Captive Audience Doctrine in college classrooms, and language from hate crime legislation for the remainder of college campuses, hateful expression can be constitutionally regulated while better meeting the demands of dissatisfied students.

This approach capitalizes on the clearest, most defensible arguments in favor of regulating hateful expression on college campuses, and offers a balanced approach that colleges may adopt, modify and apply for their own purposes. This more nuanced approach cuts
through the stalemate among scholars regarding this topic, and upholds the promise of moving toward an agreeable solution for members of both pro and anti-regulatory groups.

**Elizabeth Durham'16**  
*Columbus, OH, USA*  
Major: Studio Art  
Sponsor and Sanger mentor: Scott Espeseth  

**Collaborative Printmaking for the Production of Color Etchings**

Printmaking has an extensive, documented history of collaboration in all its processes, for the sake of communication as well as for creativity. The process of etching has been in existence for centuries, although its full adoption by artists followed its disuse for communication after further advancements in technology.

During the Sanger Summer Scholar Program I assisted Professor Scott Espeseth with his printing of three editions of color etchings. The presentation will explore the results of this collaborative printmaking, as well as outline the history of etching and context of the print medium.

**Carl-Lars Engen’17**  
*Minneapolis, MN, USA*  
Major: Environmental Geology  
Sponsor: Lindsay Chapman  

**Tying It All Together: A New Approach to Sustainability Media and Branding**

The mission of the Sustainability Office’s Communications Team is to make sustainability more visible on campus, thereby helping Beloit College produce graduates who go on to become part of the solution to climate change and other pressing sustainability issues.

The team has been researching how to make sustainability a part of every Beloit College student’s experience by generating media content related to the subject. This content is delivered through multiple platforms to the student body, including Facebook, Instagram, Terrarium and Student newspaper stories, as well as physical posters. For videos and photos on social media and physical posters, content featuring students was found to be the most effective for generating views. The communications team has branded all sustainability related activities on campus with common imagery, wordmarks, and logos. By establishing a unique brand for Beloit College Sustainability, the team unites the various projects and initiatives of students staff and faculty under a single banner. They produced content related to food, energy, waste, and other topics. Whether it’s watching a video about new meatless Mondays in Commons, or low flow toilets in Pearson’s hall, the communications team provides the media coverage for students to know what is happening, how it's related to sustainability, and why it’s important.

**Sasha Feinberg’17**  
*Evansville, IN, USA*  
Major: Japanese Language and Culture  
Sponsor: Susan Furukawa  

**Namahage: Make Way for the Modern Yokai**

Japan has always had an interest in the weird. Yokai, which can be translated into something along the lines of shape-shifter, spirit, demon, or the supernatural, can be used to explain the weird happenings of the world. Since the Edo/Tokugawa Period, the people who have worked on identifying these yokai have also shaped how we see yokai today. Their image can range from animals (like a fox) to an ogre-like being to a household object. During my time studying abroad in Akita, Japan, I constantly ran into the image of the Namahage, a group of yokai known for their annual New Year’s visits in order to drive away bad luck, bring blessings to families, and enforce rules and other appropriate behavior. My encounters ranged from a statue of a Namahage in Akita station to visiting the Nahamage museum where I saw a performance of a Namahage visit.

I then applied theories that Michael Dylan Foster brings up in his book, Pandemonium and Parade, about how yokai reflect the will and the nature of the people, and that as Japan continues its movement towards becoming a modern society, the yokai must adapt as well.

We are right in the middle of the yokai boom, where yokai are receiving a lot attention from the media. They are appearing in books, on television, and in video games. Yokai are undergoing drastic changes. Their appearance is shifting from scary to amusing.

In this presentation, I will explore the ways in which the Namahage in particular were able to go beyond being relics of the past being presented in a museum, and in doing so, how they created a new, modern identity for themselves that reflect the present day.

**Alexandra Flores'18**  
*San Diego, CA, USA*  
Major: Anthropology  
Sponsor: Bill Green  

**Bringing New Mexico Archaeology to Beloit: Reflecting on My First Archaeological Field Experience**

This past summer I participated in the Archaeology Southwest- University of Arizona Preservation Archaeology Field School. The Dinwiddie Site we excavated was located in Southwestern New Mexico and the program’s focus was on investigating the site’s link to what is known in the region as the “Salado Phenomenon”. Looking back at what I learned and the
work I did, I realized that attending an archaeological field school in the American Southwest was ideal, especially for students, such as myself, who had no direct archaeological experience at the time. The Southwest has a rich history that is well preserved due to the dry, arid climate, which means that there was an abundance of material for the field school participants to find and learn about. The field school’s artifact findings include ceramics, lithics, bone tools, and much more. Through these excavations it was found that the artifacts reflect a combination of Salado ideology and influences from other areas. Without the grants I received through the LAPC, especially that from the Stutz family, the field experience I had this past summer would not have been a possibility. Participating in this field school not only gave me first hand experience in the archaeological world, but it gave me knowledge and skills that I was able to put into use during this past academic year. This leads to the question: How can something we do over the summer contribute to our work here at Beloit?

Emma Frothingham'17  
Corvallis, OR, USA
(with Isaac Makos)
Majors: History; Music
Minor: German
Sponsor: Daniel Bartlett

History and Heritage in the Heartland: Museum Planning in Byron, Illinois

When a tourist visits a museum, they see a completed exhibit, not the hours spent scouring census records, catalogues, and books to assemble the information on display, or the time spent planning how that information will be presented to the public. In the Summer of 2015, under the guidance of Dan Bartlett and Linda Sturtz, we assembled an interpretive plan for a future museum exhibit at the Byron Forest Preserve covering a history of agriculture in the northern Illinois region, and specifically Ogle County, Illinois. The Byron Forest preserve is home to a historic farmstead, which contains a number of small buildings and a number of antiquated exhibits complete with plastic farm animals. Being on the other side of the curtain, building exhibits instead of viewing them, was a valuable educational experience that taught us about the process and amount of work that goes into planning a museum exhibit, and the close ties that still exist between this community and farming.

Our symposium will discuss the experience of assembling an interpretive plan that will be used to plan for future museum exhibits at the Byron Forest Preserve, and the degree to which agriculture remains a strong and integral part of the community and identity of Ogle County. Through our work, we had opportunities to interview local farmers in the area, visit local museums, and conduct independent research. Our work focused on the political movements that came out of Illinois agriculture and tracking the development of agriculture in Ogle County. Although the region was originally settled as a farming community and agriculture remains a pillar of the local community, over time the importance of farming and the ways in which farming has been part of the community has changed.

Alice Gehrke'16  
Fitchburg, WI, USA
Majors: Psychology; Theatre, Dance, and Media Studies
Sponsor: Greg Buchanan

Finding Catharsis: A Practical and Theoretical Exploration of Drama Therapy

If life imitates art, can art then imitate life? This is a core tenet of drama therapy, a creative art therapy that utilizes theatrical techniques to meet therapeutic goals. In the same vein as other creative arts therapies such as dance and movement therapies, art therapy, and music therapy etc., drama therapy sees therapeutic merit in artistic expression. I took a weeklong class in drama therapy last summer and this semester I have been working with a group of students who are also interested in drama therapy. In this presentation I will share with you my insight into the practical implementation of this therapeutic method as well as research findings on the efficacy of drama therapy. What therapeutic populations benefit the most from it? How has it been shaped by other therapeutic modalities? By investigating literature and reflecting on my own experience, I will draw conclusions on the various applications of drama therapy.

Benjamin Gentile’18  
Milwaukee, WI, USA
Major: Biochemistry
Sponsor: James Schulte

Evolution of Viviparity in the Genus Liolaemus

Viviparous reproduction (live birth) is known to have evolved from oviparity (egg laying) over 140 times across all vertebrates. This results in drastic anatomical and physiological changes when this transition occurs. The reverse, transitioning back from viviparity to oviparity, is generally considered highly improbable.

In the Southern half of South America reside the genus Liolaemus. This genus includes both viviparous species, as well as oviparous species. Throughout this genus it appears that viviparity has evolved from oviparity at least nine separate times, one estimated as occurring as recently as three million years ago. Previous studies have postulated the possibility of three examples of viviparity transitioning back to oviparity, including one within Liolaemus.

This particular study will combine new genetic evidence with previously published genetic data to investigate the phylogeny of representative species in Liolaemus, specifically to test the strength of support for a reversal from viviparity to oviparity in L. calchaqui.
Acculturative Depression: Latinas Battle High Rates of Depression

Latinas in the United States raised by parents and/or families who migrated from other countries have been found to have the highest risk of suffering from depression and suicidal thoughts. Latinas of second and third generation have shown to have higher rates than those of first generation. This study examines the effects of familial pressures, cultural values, acculturation, socioeconomic status, and other stressors that contribute to the risks of suffering from depression. I hypothesized that a unique combination of these factors and the amount of time residing in the US would lead to depressive symptoms such as insomnia, fatigue, sadness, lack of motivation and solidarity, self hate, along with suicidal thoughts. Participants were 24 Latina women whose ages range from 13 years old to 40 years old. Most of these women are from the Chicago area while others are from rural areas or other cities such as Los Angeles. The Latin American countries represented by these women are: México, Puerto Rico, Honduras, El Salvador, and Cuba. These women also varied in educational level, generation, and occupation. I used previous studies and research compiled to construct the interview questions. Implications of the findings include similitude among Latinas in the US. Limitations include similitude in demographics.

Use of Urea to Probe Conformational Change in 6-Phosphogluconate Dehydrogenase

The 6-phosphogluconate dehydrogenase (6PGDH) is the third step of the pentose phosphate pathway, responsible for taking apart the components of broken down carbohydrates and using them to synthesize the building blocks used in the creation of DNA along with producing NADPH. The reaction the 6PGDH catalyzes begins with 6-phosphogluconate (6PG) and NADP+ to ribulose-5-phosphate (R5P), while also creating NAPH and CO2 as byproducts of the reaction. During this reaction, the structure of the enzyme undergoes a conformational change upon binding to either the substrate, 6PG or the cofactor, NADP+. Little information is known however which is the two reactants cause this change. Understanding the kinetic mechanism of the 6PGDH can provide information on how the enzyme behaves in the presence of its substrates, and can be manipulated in its activity. African Trypanosomiasis caused by the Trypanosoma brucei parasite is known to have this enzyme in which understanding the kinetic mechanism can allow a selective inhibition of the protozoa’s enzyme without harming the host. Kinetic assays were conducted in varying the concentrations of both the cofactor and substrate to observe patterns in the enzyme’s initial velocity and rate of catalysis. Statistical analysis was then used to adhere the observed rates to a best-fit model that most appropriately described the enzyme’s performance. Global fitting of the different rate velocities showed the 6PGDH to undergo its conformational change only when it interacts with the 6PG and not the cofactor. This finding contrasts with similar studies and suggests further investigation of the kinetic mechanism of the 6PGDH in order to provide any medical or pharmaceutical relevance.
Are You Hearing Me?
Role of Accurate Perception and
Compatibility of Sexual Communication in
Monogamous Relationships

Despite slowly changing conventions, many people learn to view sex as a topic of conversation that is not acceptable. This makes it difficult, even for couples, to have effective conversations about sex. Regardless of the many taboos surrounding discussions of sexual activity, communication between sexual partners is an integral component to promoting sexual intimacy and maintaining a healthy sexual relationship.

Since sex is a highly interactive process in which development of communication strategies can lead to the achievement of sexual harmony, I sought to address the role that knowledge of partners’ sexual communication during sex plays in relationships by examining three main research aims. First, do partners report being able to accurately perceive each other’s communication styles and do partners exhibit complementary communication styles? Second, in an effort to understand communication compatibility, how do partners perceive the effectiveness of each others communication styles and what discrepancies that arise? Finally, how can understanding the efficacy of communication help to understand how certain couples maintain relationship satisfaction, sexual satisfaction, and commitment in an effort to determine whether sexual communication compatibilities can mediate these relationships.

I recruited sexually active and monogamous couples to complete a series of questionnaires about their sexual communication styles, perception of the effectiveness of their communication, and other sexual and relationship attitudes. My findings have important implications on the establishment of sexually healthy relationships as well as implications for the teaching of sexual communication skills.

Annie Hagy ’16
Major: Anthropology
Sponsor: Jennifer Esperanza

Whiteness through Stories Abroad

This presentation is about how whiteness as an “invisible” and/or “neutral” category comes into question through different experiences of being abroad in Fiji and Australia. While my understandings of whiteness are not limited to the three examples I will share in this presentation, my experiences regarding whiteness abroad remain long lasting. In this presentation, I will discuss how cross-cultural misunderstandings and different cultural expectations regarding race forced me to think about race and whiteness as defining characteristics of my relationships with people and places.

Jane Hanebuth ’19
Major: Undeclared
Sponsor: Lindsay Chapman

Getting Off the Grid: A Hands-On Experience in Renewable Energy

11 Beloit students spent their Spring Break in Denver, Colorado installing a solar array on the home of an underprivileged family. With GRID Alternatives, a nonprofit in renewable energy, these students spent the five days learning both the technicalities and intricacies of an install as they were doing it and learning the theory behind what makes solar work and what makes it viable. Tours and programming sessions at both EcoTech, a renewables college, and the National Laboratory for Renewable Energy were set up to talk about what it means to be in the renewable energy market and the future of solar power. Through GRID’s model of helping people, the planet, and employment, their work has produced over 23,000 kilowatt hours of renewable electricity.

Jonathan Harsh ’16
Major: Political Science
Sponsor: Jill Budny

Faith versus Politics: Arguing for the Moderate Separation between Church and State

An age-old debate within our country that continues to draw ire from both sides is the proper level of separation between the church and the state. There have been a variety of authors who have examined this conflict, from the time of the ancient Greeks to colonial-era America and up through the modern day, but many have presented arguments for one side or another that resort to extreme solutions without presenting a proper method for the two groups to work together.

This paper addresses this debate by taking a more in-depth look at certain philosophical texts to observe the views that each side argues for and ultimately come to a compromise between them that can satisfy all parties. More specifically, I will be looking at works by Plato (The Republic), John Jacques Rousseau (The Social Contract), and John Locke (A Letter Concerning Toleration), along with more modern-day articles and essays that discuss the role of religion in both private and public settings within our country, and in doing so find a common area of unity. In short, I argue that the proper division between church and state is an area between strict separation and a complete blending of the two institutions, where individuals are able to practice their own religious beliefs without obstruction, while a sense of a central ideology within the state would be preserved without favoring one
religion over others that would be used to educate citizens on morality. In conclusion, this project will attempt to show a compromise that may appease both sides of this debate and could be used to expose a new avenue of research that may help create the framework for a new system in which both the church and the state may coexist without the fear of oppression by one over the other.

Lauren Hartog’16  Freeport, IL, USA
Major: Art History
Sponsor: Joy Beckman

The Western Lens: Constructed Chinese Identities in 19th Century Photography

Photography became unique component Chinese visual culture throughout the later 19th century, fusing new and traditional modes of images making. Westerners were first to bring the medium across the globe, but after nearly a century of strained Sino-western relations many of the first photographers to capture imagery of China and its people carried over long standing societal prejudice against the east. Cross-cultural communication was hindered by deeply engrained and societally perceptions.

In reviewing the Mary Ripley Collection of Magic Lantern slides these cultural biases are detected and further compounded by the western construction of a false Chinese identity. My presentation will concentrate on why an incorrect view of China and its peoples was, and is, relayed through early photographic portraits. Biases portrayed in photographs will be found to be rooted in brutal western mercantilism proliferated in imperial age European popular thought. Comparing the high caliber and remarkably embracing Sino-Western Style portraits commissioned by earlier Qing courts not seen by a western audience, to lesser export paintings created for the international market, will evidence the western view of Chinese aesthetics to be excruciatingly narrow. Export paintings, along with western literature, publications, and social theories influenced the first photographers by catering to prejudiced predispositions by portraying typified portraits of Chinese peoples. The Mary Ripley Collection will be analyzed according to these prejudices. Fundamental aesthetic and image relation differences between east and west will be used to further provide evidence for the skewed western lens, and to demonstrate the true Chinese pictorial identity.

Izak Harvey-Wolff’17  Lincoln, MA, USA
Majors: History; Political Science
Minor: Chinese
Sponsor: Jill Budny

Hate Speech and the Marketplace of Ideas

Many higher education institutions seek to implement policies to prohibit hateful conduct. These policies often conflict with the First Amendment and an academic tradition of valuing freedom of speech, forcing institutions to choose whether to protect victims of hate speech or the right to free speech, even controversial or offensive speech. If institutions examine the topic of hate speech from this paradigm, they fail to recognize the dangers of allowing certain speech. Often, the freedom of some to say anything effectively silences others, which has far-reaching negative effects upon all students and the institution itself. In the case of hate speech, these effects are sufficient to permit the institution to abridge the right to free speech of some students in order to protect the victimized students and the institution. To identify hate speech and restrict it, institutions must focus on the harmful effects of said speech. When these victimized students are excluded from the laissez-faire marketplace of ideas of academic discourse, their valuable diverse life experiences and opinions go with them. A diverse marketplace fosters superior products, whether that marketplace is an academic or economic one, and producers rely on making superior products in comparison to their competition. Institutions are stakeholders equivalent to producers in this analogy: their interest is the quality of the degrees they output. When the lived experiences represented in an institution’s degree are compromised, the institution is sufficiently harmed by the damage done to its products to permit legal recourse. As this harm is inflicted by the effects of hate speech, that recourse allows institutions to prohibit it. Through a combination of existing economic theory, studies on the effects of hate speech upon individuals, and existing legal doctrine, this presentation will demonstrate how institutions can legally prohibit hate speech while maximizing their economic outcomes.

Ryan Hazuka’16  Minnetonka, MN, USA
Major: Political Science
Sponsor: Jill Budny

Hierarchical Structure in John Locke’s Theory of Property

Property has been a long-debated issue among political theorists, with a variety of philosophers such as Plato and John Locke offering different recommendations regarding the ownership and accumulation of private wealth in a healthy political community. Many scholars agree that Locke’s teachings have greatly influenced the American understanding of the role of property in our political life, and they often praise his theory of natural rights as benefiting the interests of both individuals and their communities. However, this praise overlooks the detrimental implications of Locke’s teachings for the distribution of wealth, such as the hierarchical structures of money and power that are present in American society today. In response, this paper offers a critique of Lockean property rights and argues that it is time to reconsider Plato’s concerns about the problematic effects of unmoderated accumulation of private wealth. Through...
a close reading of Locke’s Second Treatise on Government and Plato’s Republic, I argue that current theoretical debates over the role of property in America would benefit from taking more seriously Plato’s goals of community-building, fostering the happiness of others, and seeking knowledge and virtue, rather than continuing to elevate Locke’s goals of accumulating and protecting individual, private property as the central purpose of government. In conclusion, this project closely examines both John Locke and Plato's views on property, in the hopes that it can shed a new light on one of the most concerning issues that America is struggling with today.

Fabiola Hernandez’16 San Juan Capistrano, CA, USA
Major: Anthropology
Sponsor: Jennifer Esperanza
The Allocation of Maternal Health Services Following Economic Reform and Development Policies: Peru as a Case Study
Before the end of the twentieth century, multiple Latin American countries adopted population control measures as national policy, at the height of modernization and urbanization. In Peru, maternal health services and family planning programs, were restructured in response to high fertility rates, economic stagnation, political instability, and terms tied to foreign aid. During this tumultuous time, the state made efforts to address the issues of maternal/infant mortality and morbidity, and paved a pathway towards safe motherhood. It embraced international and regional legal frameworks that recognized the right to reproductive health; and the availability, accessibility, acceptability, and quality of reproductive facilities and services for all. Nevertheless, financial disparities, racial prejudice, and other factors hindered access to these goods and services for particular groups. Women that come from socially marginalized communities such as the Quechua, were often discriminated against and experienced difficulty navigating infrastructure. This presentation will look at the allocation of resources for social services, in particular maternal (prenatal as well as postnatal) and childcare, following economic reform and development policies implemented during the Fujimori administration (1990-2000). I will discuss the Truth and Reconciliation Commission’s 2001 report on the systematic and widespread violence committed by State agents against indigenous women who sought these services and will examine how lessons from this era have helped to establish new social programs that reduce barriers to maternal health care.

Elizabeth Hitchcock’17 Palmer, AK, USA
(with Gabriella Onikoro-Arkell)
Majors: Anthropology; Creative Writing; Literary Studies
Minor: Critical Identity Studies
Sponsor: Catherine Orr
Hypermasculinity in the Realm of Female Desire
Why are romance novels so full of hyper-masculine figures? Primarily romance novels are consumed by upper/middle class, straight, white women. For this audience, romance novels work supplement an absence, they quench a longing for love, sex, and adventure. At the same time, romance novels are filled with tropes of rakish aristocrats and scandalous pirates--handsome, rich, but also domineering.

In a space that is supposedly only for feminine fantasy, why do romance novels actively produce oppressive hypermasculine men as love interests? This presentation, based on a special project, will explore what it means for hypermasculinity to transition from virile and oppressive lover into happily ever after.

Matthew Hodgkin’16 See page 35
Koont Htar’17 Yangon, Myanmar
Majors: Business Economics; International Relations
Minor: Chinese
Sponsor: Ellie Anderbyrne
Facts for Prospective Students: A Semester Helping College Guides Market Beloit College to Students
College guides are a major tool prospective students use to learn about colleges before they apply. I relied on them heavily myself, having applied to U.S. colleges sight unseen from the other side of the world. This semester, I worked in the Beloit College Institutional Research, Assessment and Planning Office organizing Beloit College’s college guide submissions. I have been helping with extracting data, collecting information, and filling out the questionnaires from publishing houses such as Princeton Review, Peterson’s Guide, and Wintergreen Orchardhouse. This work has been a great opportunity to see the different college guides’ focuses, and also a great chance to look at how those information and data are collected at the college. In my symposium presentation, I will discuss the methods of collecting information and data at the college and the differing content, focus, and domestic and international audiences of those college guide. I will also talk about what I have learned from this work and what data might be surprising for a Beloit College Student.
Kye Ingram'16  
Calumet City, IL, USA
Major: Sociology  
Minor: History  
Sponsor: Beatrice McKenzie  

The Madam and Her Girls: An Introduction to the Blue Book Girls

This is a story about illicit sex, the eroticization of race mixing and how the identities of a group of biracial women remained elusive in antebellum New Orleans. I have analyzed primary documentation known as The Blue Books and secondary sources to reconstruct a narrative of the lives of The Blue Book Girls and their madam, Lulu White. Using the Blue Book Girls of the New Mahogany Hall as a case study, I will assess the extent to which the laws and customs of antebellum New Orleans allowed the women of New Mahogany Hall to remain elusive while simultaneously offering them as the face of the New Orleans underworld.

Jingwei Jia'16  
Xi'an, China
Majors: International Relations; Economics  
Sponsor: Beth Dougherty  

U.S.-China Relations and Cybersecurity

A cutting-edge geopolitical issue, cybersecurity, is now challenging U.S.-China relations. As the countries with the largest number of Internet users in the world, there remains huge uncertainty and conflicts regarding Internet communications, economic espionage activities, as well as governments’ reactions on this issue. This paper explores the current U.S-China cybersecurity situation on two levels: the private level, which deals with intellectual property rights and commercial use of the Internet by individuals and industry; and the government level, which focuses on the different political systems of the U.S. and China, government elites’ activities, such as anti-corruption, military actions, and human rights conditions. This paper also talks about the different perspectives of both U.S. and China on “China’s threat to cyber peace” in the Internet world, which constantly escalates tensions on both sides. Is it possible to find ways for the two countries to cooperate on cybersecurity, given that there remains more uncertainty than confidence to reach agreements? Can the two countries change this challenge into an opportunity to open up more efficient dialogue, and improve U.S-China relations?

Megan Kerr'19  
See page 36

Emma Keese'16  
See page 35

Sarah Keller'16  
Ann Arbor, MI, USA
Major: Psychology  
Minor: Biology  
Sponsor: Kristin Bonnie  

Volunteer Perceptions of Dignity

Dignity is a concept that is difficult to define, but includes concepts like autonomy, self-esteem, and respect for others. Previous research has determined that dignity can be produced both extrinsically and intrinsically, but it is unclear exactly how much control one has over their own dignity. This is an especially important question when it comes to end-of-life care for the elderly, for whom autonomy is low, and significant daily care is needed. The extent to which elderly patients maintain their dignity in the eyes of family members, doctors, and nurses, has been examined extensively. The purpose of my study was to extend this research to volunteers, as they also play a vital role in the care for older adults. Using an online survey, adult volunteers at various assisted living facilities were asked to rank, by importance, a series of factors related to dignity, such as self-respect and privacy. In addition, participants were asked to provide a dignity rating to a number of fictional scenarios involving the elderly. Some participants agreed to a follow-up interview that provided a deeper look at their personal experiences and beliefs regarding dignity. Through this research I hope to shed some light on this subject and open the door for further research on the role that volunteers play in the lives of the elderly.

Trevor Kenahan'16  
Swampscott, MA, USA
Major: Political Science  
Sponsor: Jill Budny  

The Paradox of War & Politics

Conceptions of the state and war are frequently explored in the field of political science. However, theories that focus on the role of the soldier within this broad field notably receive inadequate attention. Therefore, this paper seeks to fill in this gap in the scholarship by investigating the theoretical connections between the state and the soldier during wartime through the exegesis of ancient and contemporary political texts written by such varied authors as Thucydides, Max Weber, Nathaniel Fick, and Carl Von Clausewitz. While scientific and technological advancements have drastically changed warfare throughout history, the abstract and ethical questions concerning soldiers and the state in wartime have remained largely unchanged. This paper argues that there are four central principles that can be gleaned from the past and applied in contemporary situations in order to guide our understanding of this relationship. These four principles include: 1) the need for political domination through charisma, 2) the necessity of a loved state, 3) the use of war as a means for policy, and 4) the soldier’s obligation to set aside
Exploring Native Heritage and Cultures through Dance

Martin Ellsworth Seneca Jr., my grandfather, is 100% Seneca Indian. He was raised in the house he currently lives in in Irving, New York on the Cattaraugus Reservation. During the summer of 2015 I received the Venture Grant to live with him and learn native dancing. I learned many traditions and meanings behind Iroquois depictions in storytelling, dress, and cuisine. I designed and created an entire pow wow regalia fit with moccasins, a shawl, beaded leggings, a beaded yoke, and a dress. I had the amazing opportunity to perform what I learned and debut my regalia at the annual Seneca pow wow, as well as perform with native musician, Keith Secola, at the GrassRoots music festival in Ithaca, New York. Not only did I learn about Iroquois culture, but I learned so much about my family and myself during my time spent on the reservation. One of my favorite things I learned was that in Iroquois culture, the pathway to the skyworld after death is lined with strawberries to indulge in and eat as you're getting there.

The Last People of Earth: Writing and Visualizing a Dystopian Novel

What happens after the world collapses? This novel examines the results of one apocalyptic possibility. It follows a group of teens and their families struggling to survive the societal aftermath, and examines friendship, familial bonds, and the human psyche.

A work in progress for over a year, this novel is my creative writing senior capstone. At nearly 400 pages, this emotional story continues to grow and is the planned first part of a trilogy. Along with the written story, I have also been creating a digital one with the help of local teens and their families. They have posed as models for a photo shoot in order to portray the struggles faced in a dystopian North America, and have been enthusiastic supporters of the story during its continuing development. By allowing me to listen to them and study their behavior, they have also aided me in outlining a very accurate representation of a teen social circle.

Anatolia Akiyama

Major: Creative Writing; Education and Youth Studies:
Youth & Society
Sponsor: Christina Clancy

The Insecticide Imidacloprid is a Probable Contributor to Colony Collapse Disorder in European Honeybees (A. mellifera)

Honey bees worldwide are facing population declines as a result of a condition known as colony collapse disorder (CCD), when worker bees abandon a hive despite there being adequate food storage for them. There are several suspected causes of colony collapse, including a common insecticide called imidacloprid (IMD). This pesticide has a wide global use and can have detrimental effects on honey bees even at low, sublethal levels. This review examines the relevant literature on the topic, focusing on potential exposure pathways, such as water sources and pollen of treated plants, and on the negative, sublethal effects of the pesticide on honey bees. IMD has been shown to reduce immune function, lower foraging behavior, and cause cell death in brain cells of bees, making IMD a high risk factor to honey bees and a potential contributing factor to CCD.

Christina Clancy

Major: Molecular, Cellular, & Integrative Biology
Minor: Psychology
Sponsor: Rachel Bergstrom

Building Institutional Sustainability in Student Organizations:
The Beloit Urban Garden

The Beloit Urban Garden has faced difficulty in sustaining student interest and involvement throughout the academic year, funding workers during the growing season, and passing along knowledge after leadership changes. Using the Beloit Urban Garden as a case study, institutional sustainability of student-run campus organizations will be dissected and discussed.

Student organizations on Beloit College Campus have lofty goals and intentions, with one of the goals being to pass along interest, engagement, progress and knowledge from year to year. Because of the transient nature of college students, and the inevitable change in student leaders, this goal is difficult to achieve. Instead, valuable progress made by students is often lost. While student organizations strive to be completely student-run, they often rely heavily on support from administration, academic departments, campus offices, faculty, and staff.

This symposium will also offer a creative set of possible solutions to building institutional sustainability. Attempts to ensure Beloit Urban Garden thrives and the
availability of local, healthy food to the Beloit College community persists have been made through strengthening connections with campus structures, providing training for future leaders, and working to ensure that current knowledge and progress is sustained.

Emma Koeppel'16 Cambridge, WI, USA
Major: Environmental Geology
Minor: Biology
Sponsor: Carol Mankiewicz

The Effect of Land Use on Nutrient Loads in Spring Brook, Beloit, WI

Excessive levels of nutrients such as nitrogen (N) and phosphorus (P) can cause fish kills, algal blooms, and loss of biodiversity in streams. Anthropogenic activities such as row-crop agriculture, animal production, urbanization, industry, and wastewater-treatment practices are major contributors of excessive nutrients to streams. Spring Brook, a second-order stream beginning in Clinton, WI and flowing toward Beloit, WI, is influenced by non-point-source pollution from agricultural land use, and by point-source pollution from a wastewater-treatment facility and industry, making it an ideal study system for investigating the relative effects of different land uses.

On 4 days in May, July, August, and September of 2015, temperature, discharge, and concentrations of nitrate (mg/L NO3-N) and reactive phosphorus (mg/L P) were measured at 6 sampling sites. Concentrations of N and reactive P decreased downstream during all months, with the exception of P in September; for example, N decreased from 16.9 mg/L NO3-N to 6.3 mg/L NO3-N in August. Conversely, the cumulative load values (mg/s) for N and P increased downstream during all months (e.g., from 151 mg/s NO3-N to 927 mg/s NO3-N in August).

To better understand the influence of land-use on nutrient loading, ArcGIS Hydrology Tools were used to delineate sub-watersheds upstream of each sampling point and areas corresponding to specific reaches of the stream. After quantifying the area of different land-use types within these catchments, published export coefficients were used to calculate cumulative and incremental predicted loads. These predicted values were compared to the measured values to determine if agricultural land within the study system was the likely contributor of nutrients to the stream. While measured and predicted cumulative trends are similar in direction and magnitude, incremental trends show distinct, consistent differences.

Melissa Kornieczuk'17 Palos Hills, IL, USA
Majors: Critical Identity Studies; Psychology
Sponsor: Emily Coyle

Children’s Engagement in Community Science:
Lessons from Family Discovery Night

Starting in childhood, do girls and boys differ in their relative comfort with, and interest in, science? What is the role of parents, teachers, or peers in facilitating science learning outside of the formal classroom setting? By the time we reach adolescence, the gender gap in science, technology, engineering and math (STEM) is already established (e.g., Liben & Coyle, 2014; Ceci & Williams, 2010). We were interested in whether this gap can be detected through informal science interactions, such as those that occur in science museums or at a community science event like Beloit College’s Family Discovery Night. It may be the case that boys and girls interacting with the same exhibit experience fundamentally different learning opportunities.

To explore these questions, data were collected during Beloit College’s Family Discovery Night in Fall 2015. Drs. Emily Coyle and Robin Altman designed a human senses-themed exhibit, including a station about hearing. Children needed to match sounds played on a computer with sounds made by different bottles filled with various substances (e.g., oil, pennies, feathers). Children could participate alone, with a peer, or with a guardian. In total, 70 children participated in the research (36 girls, 34 boys), ranging in age from 4.5 to 12.2 years old (mean = 8.4, mdn = 8.2). Over the past semester, Dr. Coyle’s research team has analyzed the videos for gender and age differences based on children’s interaction time at the exhibit, children’s hypothesis testing with the sound matching, and children’s relative autonomy versus guidance-seeking throughout the exhibit interaction. In this presentation, I will focus on our findings thus far, including the ways in which children differed in their interactions with the exhibit, with each other, and with their guardians. I will draw from our data to offer preliminary conclusions about children’s relative comfort in interacting with scientific material.

Clare Lanaghan'19 Iowa City, IA, USA
Major: Engineering Program
Sponsor: Jo Ortel

Environmental Apathy: Could Art Be the Answer?

Even today, when evidence of human-made climate change is more conclusive and abundant than ever, few of us do more than pledge to turn off unused lights and recycle. From our consumer choices, to city-design, to where and how we get our food, and the types of vacations we take, there are many more ways to make our lifestyles more sustainable. People who do nothing...
about the climate crisis, even when they believe it exists, are arguably an even greater obstacle to the planet’s future than climate change itself. What could be more motivating than scientific evidence of looming disaster? And if that has not convinced individuals to act, what will?

Art offers a way to address our societal apathy that pure science cannot. As humans, the idea of facing total environmental catastrophe of our own design is incomprehensively scary, but responding with apathy to a problem that seems too big to solve is the opposite of what is needed to avoid global devastation. While there may be support for political leaders making ambitious plans to reduce carbon at events like the Paris Climate Conference, what is needed are new ways to motivate individuals to make significant changes in their personal lives.

An art work never inspires only one thought or feeling; there are always infinite interpretations of its message. One way to judge if a work addresses environmental apathy is by whether it inspires viewers to think about how they can improve their sustainability and, better yet, to actually do it. Maya Lin’s What Is Missing? and Tattfoo Tan’s S.O.S. Mobile Gardens illustrate very different ways contemporary artists can focus on nature and the state of the environment. Though both are interactive, one creates a sense of contemplative reverence, while the other uses humor and intrigue to instigate action.

David Lauer’16
Apple Valley, MN, USA

Major: Political Science
Sponsor: Beth Dougherty

Counterterror Discourse and the Erosion of Human Rights Norms

In the wake of 9/11, liberal, democratic countries have used the rhetoric of counterterrorism to carve out exceptions to long-standing human rights norms. These exceptions undermine the strength of human rights norms, and allow states to use counter-terror rhetoric to flaunt human rights standards. This paper argues that these countries, such as the US and the UK, despite being historical proponents of human rights, have legitimized actions such as indefinite detention, arbitrary detention, and torture. Authoritarian states such as Ethiopia and Saudi Arabia, ostensibly allies in the “war on terror,” have picked up on these new trends in norm dynamics and adopted laws similar to western powers’ counter-terrorism laws, in the form of Ethiopia’s Anti-Terrorism Proclamation and Saudi Arabia’s Penal Law for Crimes of Terrorism, among others. These states then proceed to use the same language used by the west to explain and legitimate human rights abuses such as indefinite detention without charge and torture under the guise of securitization and counterterrorism. This paper will chart the cascade of the norm and how it has undermined and aided in the circumvention of already established humanitarian and human rights norms.

Laura Lehmann’19
Montgomery, IL, USA
Major: Undeclared
Sponsor: Leeanna Shultz

Women in Law Enforcement and the Military: The Invisible Emotional and Social Struggles

Women in law enforcement and the military encounter many obstacles as a result of their chosen career paths. In addition to obvious physical differences between them and their male counterparts, the women in these male-dominated fields face social and emotional struggles. The purpose of this investigation was to focus on and identify these obstacles which women face in law enforcement and the military. This investigation utilized a research method known as the Q method. For this Q method we obtained various opinionated statements pertaining to women in law enforcement and the military from prior interviews with female law enforcement officials. We used these statements to create a survey which asked participants to categorize the statements based on their level of agreement with them. The surveys were then administered to female participants who work in law enforcement or the military. We identified five distinguishable perspectives amongst the women. Our investigation’s results describe the characteristics of each individual perspective group. Our findings also demonstrate the differences between them which help understand how women socially and emotionally engage their career in law enforcement and the military.

Heather MacIsaac’16
See page 35

Willow Macy’16
Almond, WI, USA

Major: Ecology, Evolution, and Behavioral Biology
Minor: Physics
Sponsor: Rachel Bergstrom

 Morphological Effects of Sexual Selection Observed in Reproductive Morphology of Male C. maculatus

Different mating regimes have been shown to have effects on the fitness and evolution of a species. To examine the effects of different mating environments on testicular size and penile spike length, two manipulated mating environments were created with the bean beetle, Callosobruchus maculatus for seven generations. One population was subjected to monogamy, with one male, and one female, while the second was subjected to polyandrous conditions, with six males to one female. Significant differences were observed between treatment, generation, and penile spike length. It was concluded that while different mating environments might not have an effect on testicular morphology, they have a
significant effect on penile spike morphology, but future studies should examine these factors on a larger scale with more populations across an increased number of generations.

Isaac Makos’16 Homewood, IL, USA
Majors: History; International Relations
Sponsor: Beatrice McKenzie

European Concepts of Warfare in Colonial North America

During the summer of 2015 I attended the Twentieth Annual War College of the Seven Years’ War at Fort Ticonderoga, thanks to a generous grant from the History Department. The War College is a three-day scholarly conference in Ticonderoga, NY on a wide range of subjects related to the French and Indian War (the name for the North American theater of the global Seven Years’ War). Sessions covered colonial ranger tactics, French military procurement procedures, the granting and observance of “the honors of war” during sieges in North America, and a tour of the fort itself with explanations of the history behind the reconstruction. The conference was a capstone experience for my study of the French and Indian War, which also included two summers interning as a Living History Interpreter at Fort Necessity National Battlefield in Pennsylvania. In my presentation I will argue that Ticonderoga, known by its original French builders as Fort Carillon was a physical symbol of the European concepts of warfare—large fortifications, siege warfare, and pitched battle—applied on the frontier of colonial North America. European armies brought with them across the Atlantic a system for fighting shaped by the technology and culture of warfare that had developed in Europe. In North America, these fighting methods confronted an environment and opponents that were very alien to soldiers from Britain or France. The ways that common soldiers and commanding officers adapted, or refused to adapt, to this new theater of war was often the determining factor in the outcome of a battle or campaign.

Isaac Makos’16 Homewood, IL, USA
(with Emma Frothingham)
Majors: History; International Relations
Sponsor: Daniel Bartlett

History and Heritage in the Heartland:
Museum Planning in Byron Illinois

When a tourist visits a museum, they see a completed exhibit, not the hours spent scouring census records, catalogues, and books to assemble the information on display, or the time spent planning how that information will be presented to the public. In the Summer of 2015, under the guidance of Dan Bartlett and Linda Sturtz, we assembled an interpretive plan for a future museum exhibit at the Byron Forest Preserve covering a history of agriculture in the northern Illinois region, and specifically Ogle County, Illinois. The Byron Forest preserve is home to a historic farmstead, which contains a number of small buildings and a number of antiquated exhibits complete with plastic farm animals. Being on the other side of the curtain, building exhibits instead of viewing them, was a valuable educational experience that taught us about the process and amount of work that goes into planning a museum exhibit, and the close ties that still exist between this community and farming.

Our symposium will discuss the experience of assembling an interpretive plan that will be used to plan for future museum exhibits at the Byron Forest Preserve, and the degree to which agriculture remains a strong and integral part of the community and identity of Ogle County. Through our work, we had opportunities to interview local farmers in the area, visit local museums, and conduct independent research. Our work focused on the political movements that came out of Illinois agriculture and tracking the development of agriculture in Ogle County. Although the region was originally settled as a farming community and agriculture remains a pillar of the local community, over time the importance of farming and the ways in which farming has been part of the community has changed.

William Mauck’17 Lake Zurich, IL, USA
Majors: Creative Writing; Literary Studies
Minor: Journalism
Sponsor and Sanger mentor: Chris Fink

New (and Renewed) Fiction

During the Sanger Summer Scholarship program, I helped Professor Chris Fink revise, proof, and arrange his new collection of short stories, High Hope for Fatalists Everywhere. I also wrote and revised, under Chris’s guidance, two new short stories, including “Dear Sweetheart.” My presentation will include a reading from that story, some context on the composition process, and some challenges we faced along the way.

James McFeeters’18 Silver Spring, MD, USA
(with John Dilorio)
Major: Computer Science
Sponsor: Steven Huss-Lederman

Creating the Symposium System

This year’s student symposium nomination and registration process was organized through a new website that was developed over the past seven months. Although old software already existed for the Symposium, there was a desire for new features, patched security vulnerabilities, and a general modernized update to the system. Our team was tasked with implementing the desired changes, and as we wanted to work with more modern languages and frameworks, we chose to write the new software from scratch, rather than modifying the original code. We elected to write the backend of the website in Python and used the Flask
framework to integrate support for our RESTful architecture, user authentication on logins, and server creation. We also used SQLAlchemy in conjunction with Flask to easily write SQL queries and functions to interact with our MySQL database. For the frontend of the website, we used Angular.js as our main framework to route page requests, update DOM elements, and send AJAX requests to our Flask server. We also included the jQuery library for additional Javascript functionality and the Bootstrap 3 CSS library for an overall aesthetic design. While the majority of the process involved planning, programming, and testing the Symposium system, our team encountered many unexpected issues both during the deployment process and while the site was live. This presentation will go over the design of the new symposium website and the decisions we made during its development.

Dinesh McGinty’16 Norwood, MA, USA
(with Mary Breen-Lyles)
Major: Physics
Sponsor: Paul Stanley

Modeling Solar Sensible Load with a Spreadsheet

We seek to model the thermal solar effects on the proposed Powerhouse building project. We incorporate data on the Sun’s position throughout the day and year, heat transfer between the inside and outside walls, and the internal air mass. We use Microsoft Excel and information gathered from suncalc.net and pveducation.org. Our Excel spreadsheet allows the user to input a date, dimensions, average inside temperature of building, and latitude to see how much heat enters and exits within the Powerhouse. We also configured this model on the spreadsheet to give it the ability to accurately predict heat flux and solar insolation for any generic building. This portable software will be made available to the public as a free user adjustable tool for energy computations; we use the tool to predict heating loads on the future Powerhouse.

Monica McKee’17 See page 35

Kristen Rose McNeill’16 Nanuet, NY, USA
Majors: Education and Youth Studies: Youth & Society; Russian
Sponsor: Jingjing Lou

An Entrepreneurial Approach to Education

My presentation shares the findings of my senior thesis, which examined the potential for using entrepreneurship education as a tool for providing meaningful opportunities for educational, personal and social engagement within the context of a an educational and job-training program for at-risk youth in the City of Beloit.

Over the month of February, I designed and carried out three workshops with the objective of creating opportunities for self-discovery, entrepreneurial problem solving, and social action relevant to the students involved. By placing entrepreneurship education at the root of the curriculum and infusing this concept with alternative approaches and theories to teaching and learning such as drama-based instruction, mentoring and the development of what Carol Dweck’s has referred to as growth and fixed mindsets, an open, engaged, motivating environment was created.

A group of six Beloit College students, who each took on the role of a mentor, teamed up with six students from Fresh Start, who were eager to be there, and worked one-on-one to come up with individualized attainable business plans for each Fresh Start student. Over the course of three weeks each student began to see themselves take the role as an entrepreneur and, as a result, felt motivated to take action to apply these concepts to their own lives outside of the classroom.

The purpose of my research was to provide a lens for thinking about the value of entrepreneurship education as a tool to encourage and motivate in learning environments, and this has led to bigger questions about the need for education reform for at-risk millennial students and lasting questions about the role of education in our society.

Milica Mihajlovic’16 Westmont, IL, USA
Majors: German; Russian
Sponsor: Donna Oliver

“He Who is Happy is Right”: Conflicting Concepts of Love in Leo Tolstoy’s The Cossacks

The Cossacks (1863) is a novella about a man, Dmitri Andreyich Olenin, who leaves Moscow to join the Russian army in the Caucasus and live among the Cossacks there. Though he is escaping the city to pursue a new life outside the confines of society, he is also leaving behind debts and a failed love affair in the process. For Tolstoy, Olenin’s attempt to change himself, to become a Cossack, ultimately fails because he is trying to pursue a romantic ideal that doesn’t actually exist and shed an identity that is a fixed part of who he is. This failure to change reflects Tolstoy’s own core belief in the immutability of one’s identity.

One of the ways in which Tolstoy exposes the futility of Olenin’s quest for a new life is through his hero’s changing concept of love. In one of the novel’s key passages, Olenin experiences a sort of spiritual revelation in which he feels a deep connection with nature and a heightened sense of self-awareness about his individuality in the world. He concludes, somewhat illogically, that selfish love—that is, self-gratifying love for another individual—is what makes people unhappy, and that one instead achieves happiness through the
practice self-sacrificing love. Tolstoy exposes the illogic of this idealistic notion when Olenin falls hopelessly in love with Marianka, one of the Cossack women he encounters.

In addition to analyzing the conflicting concepts of love presented in the novel, this paper examines Tolstoy’s own conflicting beliefs about the nature of love. Although he mocks the idea in *The Cossacks* that one can love everyone equally and practice self-sacrificing love, later in his life Tolstoy himself promoted the idea of universal love and thus made the same mistake for which he criticized his hero Olenin in his novel.

Skylar Millar’17

Ellen Moses’16  Berkeley, CA, USA

Major: Anthropology
Minors: French; Museum Studies
Sponsor and Sanger mentor: Nancy Krusko

Making Babies: Selecting Semen from Donor Catalogues at Sperm Banks

Single women and couples make their decision of what sperm to choose from a sperm bank based on their preconceived notions of heritability, desirable traits and science. Until the 1970s, couples having trouble conceiving traditionally went to physicians who would facilitate the process of finding a donor, often choosing for the couple based off of the physical appearance of the non-reproducing member. With advances in methods of freezing and thawing sperm, the sperm banking industry blossomed, becoming more widespread and accessible for individuals seeking assistance in conceiving. This time was also marked by a growth in the amount of information that recipients had access to about their potential donor.

Using data from interviews conducted with sperm bank users and donor bios from a California sperm bank, I will present the kinds of information available to individuals hoping to conceive using sperm donation and how it is used, or ignored, by those making the choices. In this paper, I argue that the extensive categories of information available to recipients, which range from health history to hobbies, are used selectively by recipients in a way that does not always correspond with their understanding of the heritability of those traits.

Nate Muckley’16  See page 35

Sarah Mueller’16  Enosburg Falls, VT, USA
(with Rose Richard)
Major: Ecology, Evolution, and Behavioral Biology
Sponsor: Lindsay Chapman

Bringing the Food Recovery Network to Beloit College

Approximately a quarter of the United States energy budget is utilized for food production. In addition, between 40 – 50% of food is lost at some point during production and consumption. Many times food that is wasted is edible, but there are no structures in place to relocate the food to where it is needed most. This loss means that we are wasting scarce resources used to create food and contributing to the negative impacts of climate change through the production of greenhouse gases. Coupled with the environmental effects of wasted food, fourteen percent of the households within the city of Beloit are food insecure; matching the national average.

This semester the Sustainability office’s food team has been working to combat issues of food waste at Beloit College and in the community at large. We work with local community partners to deliver food leftovers from Commons to the Caritas food pantry which is a non-profit organization based in Beloit that provides low income families with food, clothing, and diapers.

The Food Recovery Network (FRN) is a national organization of students from college campuses who work to prevent food waste by recovering, or giving excess food from cafeterias to local food pantries. Sarah Mueller, ’16 has worked for months to reinstate Beloit College’s chapter with the FRN, partnering with Bon Appetit and Caritas.

This semester, we had the opportunity to attend the national Food Recovery Dialogue and Lobby Day. We were able to advocate for the Food Recovery Act to senators and representatives in Washington D.C. This act incentivizes donations from retailers and encourages the sale of ‘imperfect’ produce. We are excited to share what we learned on a national scale and how our experience at the conference can be used to inform the work we do here in Beloit.

Rikako Nishimura’16  Nutley, NJ, USA

Major: French; Russian
Sponsor: Donna Oliver

In Pursuit of Moral Perfection: Tolstoy and the History of Vegetarianism in Russia

In the late 1870s, Leo Tolstoy, the famed Russian writer, experienced a moral crisis, the result of which was his development of his own moral creed, similar to a type of Christian asceticism. His teachings of nonviolence, abstinence, and vegetarianism became some of the essential tenets of his new ideology, often called “Tolstoyism.”
Although vegetarianism had already existed in Russia for quite some time due both to the higher cost of meat and to Orthodox Christian fasting practices, it did not truly rise to prominence until Tolstoy wrote about it in an essay called “The First Step.” While often lauded as a striking work of vegetarian propaganda for its gruesome description of his visit to a slaughterhouse in Tula, Russia, there is actually only one chapter dedicated to the problem of the animal abuse that occurs in slaughterhouses. In fact, in his essay, he cites multiple reasons for his conversion to vegetarianism, most of which have nothing to do with cruelty to animals. I suggest that there is an additional, deeper rationale for Tolstoy’s abstention from meat. Analyzing texts written by him and about him, I conclude that Tolstoy’s vegetarianism was part of a larger, lifelong quest for moral perfection, achieved in part by taming the body’s appetite not only for meat, but for sex as well.

Katia Nonet’16

Defining Community Identity Using Llama Iconography in the Andean Region during the Late Intermediate Period (ca. AD 1000-1400)

Although domesticated llamas seem to be an important element of the Pre-Hispanic Andean economy and social structures, they appear inconsistently in the iconography of ceramics, textiles, lithics, and other media. Recent archaeological excavations at the site of Yunkaray, Maras, Peru revealed a high frequency of local style ceramics with llama iconography. Found in domestic areas associated with high status individuals, these ceramics were likely used for feasting and as an avenue of demonstrating personal wealth during the Late Intermediate Period (LIP, ca. A.D. 1000-1400). While the presence of llama iconography on Yunkaray pottery is expected based on evidence for the importance of agropastoral activity within the Maras region, the question remains as to why certain areas incorporated llama imagery during the LIP and not prior. Through my symposium, I will explore the distribution of llama iconography in the Cuzco region and in the broader Andean region, both temporally and geographically, in relation to the types of vessels on which this iconography appears. I will argue that in Cuzco, this iconography functioned as a way of defining unique identities that differentiated regional communities from the emerging Inca Empire.

Gabriella Onikoro-Arkell'17 Minneapolis, MN, USA (with Elizabeth Hitchcock)
Majors: Anthropology; Critical Identity Studies
Sponsor: Catherine Orr

Hypermasculinity in the Realm of Female Desire

Why are romance novels so full of hyper-masculine figures? Primarily romance novels are consumed by upper/middle class, straight, white women. For this audience, romance novels work supplement an absence, they quench a longing for love, sex, and adventure. At the same time, romance novels are filled with tropes of rakish aristocrats and scandalous pirates--handsome, rich, but also domineering.

In a space that is supposedly only for feminine fantasy, why do romance novels actively produce oppressive hypermasculine men as love interests? This presentation, based on a special project, will explore what it means for hypermasculinity to transition from virile and oppressive lover into happily ever after.

Nissa Parker'17

Food Insecurity: An Analysis of Amartya Sen’s Entitlement Approach

With almost 840 million people worldwide not receiving proper nutrition on a daily basis, and with the global population slowly increasing by a projected addition of 2 million more people by 2050, we must look at sustainable ways to feed today’s generation and future generations. According to the World Bank, one in six people live in extreme income poverty on less than a dollar a day, and almost half of the world’s population live on an income of less than two dollars a day. Given these statistics, malnutrition and famine play a significant role when global organizations create policies and provide funds for developing countries. In addition, the world has slowly changed what it eats, and consumption of meat has more than doubled in the past hundred years as diets have shifted from being based primarily on grains and legumes to more animal-based diets that rely upon the factory-farm method of producing meat. Unfortunately, this method has created several public health and ecological disasters, from air and water pollution to emerging animal diseases and loss of livestock genetic resources. Such disasters created by factory-farming can be detrimental to developing countries. Therefore, this paper argues that infrastructure to aid the development of meat industries should not be a driving force behind policies for developing countries, as it is not a sustainable way to feed a growing population.
Vanessa Pena’16  Chicago, IL, USA
Majors: Education and Youth Studies: Youth & Society; Sociology
Sponsor: Jingjing Lou

How Does Midwestern Learning Academy Incorporate Strategies around Mentorship that are Seen as Effective for At-Risk Girls

Midwestern Learning Academy (MLA) serves as an educational setting designed to accommodate the behavior and/or medical needs of adolescents who are behind on high school credits. Alternative schools are often used as a setting for adolescents that cannot be adequately addressed in a traditional school environment. The demographics of MLA demonstrate a large percentage of minority students attending MLA. This is significant because it raises questions such as why is there a large minority student population placed at MLA? What is the school doing to best serve the cultural needs of these students?

My fieldwork at MLA allowed me to examine strategies around mentorship of at-risk girls. During three months of conducting informal interviews and building a rapport with many of the female students, I learned the importance of narratives. The stories, aspirations, and hopes that many of the girls presented are very similar to the ones I had when I was their age. This connection led to a cross-cultural examination among strategies around mentorship that I received in high school versus the experiences that these girls are getting along with sharing similar identities with the girls I mentored.

A common expectation is for all college students to assimilate and adopt to the norms of the dominant culture as “many faculty members and staff in higher education know little about the history, challenges, strengths, and perspectives that traditionally underrepresented students bring to college” (Conrad & Gasman 2015). This research allowed me to discover the most effective strategies around mentorship and the paths underrepresented high school students are taking to obtain college access given their educational setting.

Stafford Perry’17  Oshkosh, WI, USA
Major: Political Science
Minor: History
Sponsor: Jill Budny

Malcolm, Martin, and Plato’s Cave: Evaluating Success

This paper examines the question of how contemporary Americans might judge the legacies of Malcolm X and Martin Luther King Jr. in terms of their overall success in relation to each other. While many Americans might initially assume that Dr. King experienced greater success, this paper challenges this assumption. This paper begins by establishing a framework for understanding success that draws from Plato’s political philosophy through his Allegory of the Cave and that seeks to answer the questions: what does it mean to be successful and how can it be measured? After answering these questions, this paper applies this framework to the political projects of these two civil rights leaders. The final part of the paper examines the connection between which leader was more successful and therefore which one may have made more progress in escaping Plato’s metaphorical cave.

Sarah Pipal’16  See page 35

Thomas Porkka’16  Brookfield, WI, USA
(with Estiaque Haidar Shourov)
Major: Physics
Sponsor: Paul Stanley

Calculating the Energy Cost of the Science Center Door

As part of analyzing energy issues in large campus buildings, we evaluated the performance of the automated double sliding door of the Science Center. We used two models to calculate the heating cost due to such a door: the first one considers the temperature drop in the atrium while the other considers the volume of cold air that rushes in each time the door opens. Based on these models, we propose alternative options for the front door.

Jieyang Qian’16  Singapore, Singapore
Major: Computer Science
Sponsor: Steven Huss-Lederman

The Unimagined Web Service: Improving the Campus One Line of Code at a Time

Have you ever wished for a service only to realize that it does not yet exist? This is a talk about turning that imagination into an actual product. The product is a dedicated web service for the campus to create and share calendars and events. It provides real time event updates and centralized notifications much like any of the social media platform that you are used to. The web application is an open source project developed using SQL, C# and Angular JS. It is a modular and scalable application with robust APIs that allows for plug and play style of development. More important than the existing code base is it’s ability to extend and morph into other services; the only limitation is your imagination.

The talk will focus on the development process from design to implementation. It will also cover some technical details of the application such as design patterns, web APIs and testing.
**Fabiola Ramirez’16**  
*Milwaukee, WI, USA*

Majors: Education and Youth Studies: Youth & Society; Political Science  
Sponsor: Jingjing Lou  

**Exploring the Relationship between Soccer and Higher Education among Young Latino Males**

National demographic data shows that in America Latino males have the lowest high school, college, and university graduation rates. The relationship between sports and academic achievement has been explored and proven to be a positive one; however, the direct relationship between higher education achievement and soccer among Latino males has not been explored in depth. This paper investigates if there is a relationship between playing varsity soccer and the ability to successfully attend college for young Latino males. In this paper you will find the stories of five young men who have used soccer as a tool to attain higher education. These stories are accompanied by an in-depth analysis of the role that soccer has in Latino communities, as well as the role that sports have in college attainment among minority students.

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**Fabiola Ramirez’16**  
*Milwaukee, WI, USA*

Sponsor: Beth Dougherty  
Sanger mentor: Rachel Ellett  

**Peacemaking: A Case Study of Burundi’s International and Domestic Organizations’ Roles**

Burundi has experienced political strife and conflict on and off since independence, suffering from various genocides, a civil war, and currently violence streaming from President Pierre Nkurunziza’s controversial third term re-election. This paper investigates and provides an analysis of what international organizations and domestic governmental, as well as non-governmental, organizations have already done in Burundi to attempt peacemaking. Furthermore, this paper assesses the continuous and future roles of these organizations through an analysis of the interactions that already exist between domestic and international actors in peacekeeping in Burundi. Lastly, the paper offers recommendations on what the relationship among domestic and international organizations should look like looking forward in order to achieve peacemaking in Burundi. This research is an outgrowth of the research I conducted through the Sanger Summer Research Program with Professor Rachel Ellett on rule of law in sub-Saharan Africa during the summer of 2015.

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**Collin Reid’17**  
*West Dundee, IL, USA*

Major: Political Science  
Sponsor: Jill Budny  

**The Varieties of Populism: Where and How We See the Politics of “Ordinary People”**

Populism is a term that is commonly used to describe the motivations and goals of political figures. We often hear the word “populism” used in political discussions; however, public political discourse fails to capture the nuances of this label. This can be problematic, because the word is commonly applied in almost equal measure to disparate political figures stretching across the political spectrum, from Dr. Martin Luther King Jr. to Hitler. Scholarly discussions of populism don’t fare much better, and there is a great deal of confusion and debate in the secondary literature regarding the definition of this term. In this paper, I review and critique the existing definitions of populism and offer a new, more nuanced classification system helps us to both distinguish and unite various populist figures spanning the political spectrum. This makes populism a term that can be understood more easily and applied more meaningfully. It also allows us to better identify the ultimate goals of populist political figures based on the ways in which they conduct policy and employ political rhetoric. After presenting this new taxonomy of populism, I then analyze the rhetoric, goals, and strategies of various historical figures and categorize them according to this new schema. Through this project, I call into question commonly-held opinions about populism and offer a new framework that allows political scientists to classify political figures based on how they operate in practice, rather than taking the self-descriptions of these individuals at face value.

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**Rose Richard’17**  
*Homewood, IL, USA*  
*(with Sarah Mueller)*

Majors: Political Science; Environmental Studies  
Minor: Environmental Studies  
Sponsor: Lindsay Chapman  

**Bringing the Food Recovery Network to Beloit College**

Approximately a quarter of the United States energy budget is utilized for food production. In addition, between 40 – 50% of food is lost at some point during production and consumption. Many times food that is wasted is edible, but there are no structures in place to relocate the food to where it is needed most. This loss means that we are wasting scarce resources used to create food and contributing to the negative impacts of climate change through the production of greenhouse gases. Coupled with the environmental effects of wasted food, fourteen percent of the households within the city of Beloit are food insecure; matching the national average.
This semester the Sustainability office’s food team has been working to combat issues of food waste at Beloit College and in the community at large. We work with local community partners to deliver food leftovers from Commons to the Caritas food pantry which is a non-profit organization based in Beloit that provides low income families with food, clothing, and diapers.

The Food Recovery Network (FRN) is a national organization of students from college campuses who work to prevent food waste by recovering, or giving excess food from cafeterias to local food pantries. Sarah Mueller, ’16 has worked for months to reinstate Beloit College’s chapter with the FRN, partnering with Bon Appetit and Caritas.

This semester, we had the opportunity to attend the national Food Recovery Dialogue and Lobby Day. We were able to advocate for the Food Recovery Act to senators and representatives in Washington D.C. This act incentivizes donations from retailers and encourages the sale of ‘imperfect’ produce. We are excited to share what we learned on a national scale and how our experience at the conference can be used to inform the work we do here in Beloit.

Stephanie Rosenwinkel’16  See page 35
Alexis Sabor’17  Norridge, IL, USA
Major: Health and Society
Minor: Political Science
Sponsor: Ron Nikora

Cross-Cultural Look at Sexual Health Resources: How Sexual Health Access Compares and Contrasts in the US and Ghana

How do sexual health organizations differ in different places in the world? In this symposium, I will compare the similarities and differences between the city of Beloit's sexual health resources, like the Beloit Public Health Initiative (BPHI) and Community Action, Inc, with the West Africa AIDS Foundation (WAAF) in Accra, Ghana. I was an intern at WAAF while I was abroad in Ghana, have been a member of BPHI since my sophomore year, and through BPHI I have been able to spend time at Community Action through my association with BPHI. Although the missions/goals are similar among these institutions, which is to improve the sexual health in each respective community, and although the tasks I was assigned through my experience at these organizations were also similar in nature, there were fundamental differences in these institutions that made my experiences differ greatly. For example, in Beloit, one of the biggest challenges faced by the community is debate between community members and sex ed advocates. While at WAAF, there were different kinds of challenges like providing free HIV/AIDS testing in neighborhoods with no chance of sexual education access and rolling blackouts that shut down WAAF’s clinic and made community progress slow. Most of the challenges I faced while working at WAAF were things that were very unlikely to happen in the United States. Through this, I plan to navigate how culture plays an impact in sexual health institutions and how even very similar internships can have totally different outcomes cross-culturally.

Griffin Salisbury’16  Bainbridge Island, WA, USA
Major: Psychology
Sponsor: Greg Buchanan

Implicit Racial Bias and Drugs

Two experiments were conducted to investigate the influence of racial cues on the perceptual identification of drug paraphernalia. Participants filled out surveys on explicit racial prejudice as well as motivation to not come across as prejudiced. In Experiment 1, participants were primed with black and white pictures of Black or White faces, followed by a picture of an object that they were asked to identify. The object was either a standard household item (e.g. pen) or a drug-related item (e.g. syringe). Reaction times were measured as well as mistakes. In Experiment 2, the priming pictures were color photos of Black or White mugshots. The objects remained unchanged, and again reaction times were measured. It was hypothesized that as Beloit College students, participants will score as “not explicitly racist” on the first survey, and that they will have a high motivation to not come across as being prejudiced. It is also hypothesized, however, that participants will misidentify household objects as being drug paraphernalia more often when they have been primed with a Black face, as opposed to a White face, indicating the presence of an implicit racial bias.

Alexander Schneider’16  See page 35
Estiaque Haidar Shourov’16  Dhaka, Bangladesh (with Thomas Porkka)
Majors: Mathematics; Physics
Minor: Chemistry
Sponsor: Paul Stanley

Calculating the Energy Cost of the Science Center Door

As part of analyzing energy issues in large campus buildings, we evaluated the performance of the automated double sliding door of the Science Center. We used two models to calculate the heating cost due to such a door: the first one considers the temperature drop in the atrium while the other considers the volume of cold air that rushes in each time the door opens. Based on these models, we propose alternative options for the front door.

Student Symposium, Spring 2016  30
Hailey Stevenson’16  
Major: Psychology  
Minor: Health and Society  
Sponsor: Kristin Bonnie  

Connecting Home, School, and Reading  

Reading is just one of many skills learned in school that we continue to use throughout our lives. But, what happens when children are not meeting the standards of reading at their grade level? Schools often employ Reading Specialists who provide intervention tools and programs to assist students experiencing reading difficulties. For my Psychology Practicum last fall, I was placed with a Reading Specialist at Beloit’s Fruzen Intermediate School, and I have continued working there through an internship this semester. Research supports having children read at their own level, rather than reading at grade level, because of how detrimental that can be to children who experience difficulties. While at Fruzen, I have helped apply this research by working one-on-one with a fifth grade student whose reading level is below grade level to improve her comprehension, vocabulary, and choosing “just right” books. I have also assisted in a reading intervention class for 4th graders, and have organized the new reading intervention book room at Fruzen. Through my time at Fruzen, I have enjoyed working with the students, using my liberal arts education to connect psychology, teaching, and reading, while also learning the importance of the relationship between Beloit College and the Beloit Community.

Eating Language:  
The Transformation of Reality in Mahayana Sutras and the Catholic Eucharist  

In 21st century America, religion is frequently treated as, first and foremost, a matter of belief. And yet, a wide variety of sacred texts challenge our single minded focus on doctrine. Mahayana Buddhist sutras are among these texts, playing with paradox to jar readers out of their complacent understandings of Buddhist teachings. Rather than demanding particular “right beliefs” from their reader, the sutras only request that we engage with them. The texts promise quite explicitly that if we do so, their language will naturally work their way to our sense of reality, like food being consumed and digested within our bodies.

In this talk, I would like to discuss how we might draw an interpretive lens from the Mahayana sutras, using their claims of their own power to understand how texts impact our sense of reality more widely. I will compare the transformational nature of language in the sutras to that of the Catholic Eucharist, a ritual which similarly exemplifies the connection between text and food. Finally, I will touch on the ways in which secular discourse functions like the sutras and the Eucharist, changing those of us who consume it, oftentimes regardless of any voluntary choice to believe.

Charles Spalding’16  
See page 36  

Evolution of Shock Melt Compositions in Lunar Regolith  

Space weathering processes – driven primarily by solar wind ion and micrometeorite bombardment, are constantly changing the surface of airless bodies in our solar system. The lack of atmosphere on the Moon means that the surface of the lunar regolith is affected by these processes. One product of micrometeorite bombardment is the formation of agglutinates, or clumps of regolith grains fused together by the glassy shock melt produced during impact. It is essential to study lunar soils in order to fully understand the processes of space weathering, and the skewing effects it has on optical reflectance spectral imaging of the lunar surface.

As a part of the Lunar and Planetary Institute internship program, I conducted research to analyze the chemical composition of agglutinates found in Apollo 17 lunar soils. The primary goal was to develop a more efficient analysis technique to quantify and plot elemental weight percentages of agglutinative glass. Once this method was developed, I measured the concentration of various elements in Apollo 17 lunar samples. I was able to determine the relative contributions of solar wind and micrometeorite bombardment to the evolution of regolith in the Mare Humorum region of the Moon.
established, the aim was to further explore melting and mixing processes in agglutinate formation, correlate chemical homogeneity of glassy regions to the maturity of the parent soil, and to identify the principal chemical components contributing to the compositional variation. The project worked to identify anomalously high Fe submicron-scale compositional domains in the agglutinitic glass.

Results show that the chemical homogeneity of agglutinitic glass is not tied to maturity. The composition and homogeneity of the glass is determined by the target material, and individual mixing events are too stochastic to define parameters. The results also show a high FeO content in the glass, which indicates that ilmenite and pyroxene are not the only contributors to the composition. The residual FeO could be attributed to a combination of melting high Fe pyroxene and olivine grains, and melting Fe vapor rim deposits around the finest fraction of soil grains.

**Allison Vance’16**

See page 35

**Maggie Warren’16**

Deerfield, IL, USA

Major: Environmental Biology

Sponsor: Pablo Toral

**Creating the “Good Oak Display” for the Aldo Leopold Nature Center**

In Greening the Liberal Arts, our ENVS capstone class, we were encouraged to find a capstone project that will culminate our liberal arts education. I am an environmental biology major with interest in conservation, education, science communication and studio art. I looked for projects that reflected my Beloit College education. I contacted local nature centers, rehabilitation centers, and non-for-profits to see if they had available projects. I was given the opportunity to work with Aldo Leopold Nature Center to create an educational display using a red oak tree slice, or tree cookie.

I was inspired by Aldo Leopold’s chapter in the Sand County Almanac titled the Good Oak; he used tree rings to go through the evolution of Wisconsin's history. I started brainstorming how to use tree ring to communicate Wisconsin's history and what I should highlight. The main objective I wanted to achieve through the project is to connect people to their own natural history of our land.

There are endless possibilities of how to approach this project regarding both the content and visual display. I started with a traditional comprehensive timeline approach, incorporating the economic, political, natural and cultural events that shaped the land. When thinking if this was an effective way to communicate my main objective I decided to turn to storytelling and narratives. I focused on interesting narratives of individual species and peoples plight over time. This talk will go through the process of creating an educational exhibit, both the Wisconsin's natural history content and visual tree cookie display.

**Miriam Wilch’19**

See page 36

**Wally Wirchanski’16**

Lanark, IL, USA

Major: Philosophy

Sponsor: Matt Tedesco

**Humean Constructivism about Moral Facts: A Defense**

Constructivism asserts that there are moral facts, but that they ultimately arise from and are determined by agents' stances—that is, their core values, attitudes, desires, etc. I defend a Humean version of constructivism from several objections:

1. a dilemma from robust realists—who think moral facts are fixed, external, and not stance-dependent—which suggests that constructivism is either robust realism in disguise (and therefore false) or arbitrary enough to be rejected,
2. a related objection from other constructivists, which suggests that Humean constructivism grants the possibility of certain agents (so called ideally-coherent Caligulas) being fully justified in committing (and enjoying) morally repugnant acts, and
3. an objection from blameworthiness, which suggests that at least some reasons for or against action are not dependent upon agents’ stances, as Humean constructivism maintains.

In response, I show how Humean constructivism’s account of reasons ensures stable moral standards without relying on robust moral facts, sidestepping the first objection’s dilemma. The second objection is addressed by showing that ideally-coherent Caligulas are either not coherent in their beliefs, and therefore mistaken in acting such as they do, or not as counter-intuitive as one may think. Finally, I address the objection from blameworthiness by showing that it either entails blaming agents for acts which they had no reason to avoid doing, or presupposing robust realism.

**Alison Wood’16**

Pacific Palisades, CA, USA

Major: Psychology

Minor: Music

Sponsor: Alexis Grosofsky

**The Influence of Bass Level and Familiarity on Ratings of Power in Music**

I investigated how music can induce feelings of power in participants. This study was a partial replication of a study done by Hsu, Huang, Nordgren, Rucker, and Galinsky (2014) where they had participants rate how powerful a set of 31 popular songs made them feel and organized the results into high and low power song groups. I first sought to replicate their high and low
Student Symposium, Spring 2016

Lena Wright’16
(with Emma Koeppel)
Major: Environmental Studies
Minor: Political Science
Sponsor: Pablo Toral

**Bursting the Bubble: Creating a Revolving Loan Fund for the City of Beloit**

On Beloit College campus, the Revolving Loan Fund provides the initial capital needed to implement environmentally focused projects the college would not normally pursue due to high start-up costs and longer return-on-investment. The RLF allocates a portion of the savings produced by the project back into the fund, hence the revolving nature. This Environmental Studies Capstone project worked with the City of Beloit Chamber of Commerce to explore the possibility of a Revolving Loan Fund for businesses in Beloit. Working with local small businesses, three potential project case studies were identified, and models were created that showed the payback these environmentally-focused projects could produce. A potential governing document was written after research into existing RLFs for other Chambers, schools and cities. This symposium will focus on the challenges and rewards of working with the greater City of Beloit and local businesses, balancing multiple stakeholder needs in a community-based project, and the intersections of the environment and economics in projects such as a Revolving Loan Fund.

Leslie Wright’16
Major: Literary Studies
Minor: History
Sponsor: Diane Lichtenstein

**Representations of Helen and Penelope in Modern Literature**

Homer’s epics are still in the public imagination today, and two of his major female characters particularly—Helen of Troy and Penelope, wife of Odysseus—have captured the attention of a multitude of modern authors. Why are there so many recent adaptations of these ancient stories focusing on these women? What does each new author bring to their legacy? What does it say that many of these adaptations are young adult novels, or feminist revisions? Interesting implications about the nature of these retellings are also uncovered by the fact that all of these contemporary authors are women, including award winners such as Margaret Atwood as well as popular young adult novelists such as Caroline Cooney and Esther Friesner. Each story provides a new voice for these mythic women in a way that Atwood’s Penelope summarizes best: “it’s my turn to do a little story-making.”
Expanding the Comfort Zone: Improving Central Plant Chiller Efficiency

I worked as one of the Sustainability Fellows last summer. The goal of my internship was to conduct a financial model to estimate the costs of two different replacement options for the campus major chillers by performing a cost-benefit analysis.

The two chillers are located in the north side of the Sports Center. The older one is a 300 ton chiller, while the newer one is a 600 ton chiller. These supply the cooling needs to the majority of the residential dormitories as well as many of the buildings on the academic side. Both chillers are too old to for cost effective repairs, and both have high possibility of failure. They are not configured to operate simultaneously in order to meet the larger cooling needs of a hot summer day. In addition, there are five residential houses that lack air conditioning and one additional house is cooled by an old stand-alone chiller that needs to be replaced.

There are two replacement options. The first option is to replace the 300 ton chiller with a new 300 ton unit; the second option is to upgrade the 300 ton chiller with a new 600 ton unit and using the cooling ability to the cool the six additional residential houses. By comparing the present value of the two different cooling options, I was able to propose the most cost-efficient replacement plan to the College.

Heat Pumps and the Rock River: Mediating Temperatures in the Powerhouse

Beloit College is currently in the process of turning an old Alliant Energy power plant into a new sport center and student union. Our team researched and analyzed the feasibility of the proposed heating and cooling system. In the early proposed plan for the Powerhouse there was an idea to use the Rock River as a heat source and sink to both heat and cool the building. We will present on some of the the consequences of these plans---engineering challenges, limitations because of physical laws, and possible costs---and contrast the use of a heat pump with other heating and cooling methods. The results of this work can help frame further actions the College can take in creating an energy efficient and innovative recreation center.

Little Eyases: Diminutive Erotics in Boybands and Boys’ Companies

This symposium will analyze the connectivity between a popular culture that objectifies and sexualizes pubescent boys and the relative power structures defining boys’ gender expression and relationship to young women. By using Valerie Billing’s theory of the erotics of the diminutive, I will explore the larger work playwrights working specifically with boys’ companies and the popularity of boybands in contemporary society in order to establish mirroring tensions that existed at the turn of the 17th and 21st centuries, enabling the popularity of young women exploiting boys for sexually charged entertainment.

I will also explore the use of homoeroticism between boys (and the commodification of their bodies) as a performative sexuality for entertainment value, as well as the supposed queering of traditional gender roles as prescribed by erotics of the diminutive in relation to other societal forces on gender.

In placing today’s boybands in conversation with boys’ theatrical companies of the early 1600’s, my paper aims to define the relationship between an empowered woman and diminutive boy and investigate the formation of their power dynamic.

Making Beloit a Zero Waste Campus

To promote waste reduction on campus, the Sustainability Office’s Waste Team has been working on a variety of projects to decrease the amount of trash generated, which eventually ends up in the Janesville landfill. The Waste Team’s recycling auditing data explicitly shows the average amount of recyclables and trash from students and faculty members. Through projects like Terracycling, Eco-2-Go Containers, Recyclemania, the Waste Team endeavors to engage the college’s imagination on how to become a zero-waste campus, and generate less greenhouse gas emissions. The greatest difficulty the team faces is the insufficient awareness about sustainability issues and student initiatives on campus. Information sharing has become a pivotal part of the team’s activities this semester. Without the knowledge of “how” and “why” around waste reduction, Beloit College cannot educate the students to think about the local environment as well as equip its graduates to make meaningful contributions towards a sustainable world on a global scale.
Panel Presentations

Sustainability Mapping at Beloit College

Emma Keese’16
Seattle, WA, USA
Major: Environmental Studies
Minor: Biology

Heather MacIsaac’16
Wheeling, IL, USA
Major: Anthropology

Sarah Pipal’16
La Grange, IL, USA
Major: Environmental Studies: Environmental Justice & Citizenship
Minor: Physics

Allison Vance’16
O’Fallon, IL, USA
Major: Geology

Sponsor: Sue Swanson

The Sustainable Leaders Mapping Team completed a year-long multifaceted and spatially based analysis of environmental features of the Beloit College campus, under the guidance of Professor Sue Swanson. By developing a Geographic Information System (GIS) and working with faculty members from different departments on campus, the collected data are intended to become sustained knowledge of the campus for future use and updates, as necessary. Data collection techniques included using Trimble GPS units, analyzing the college’s archives and digital databases, viewing Physical Plant records, conducting interviews, and more. Sarah compiled physical, architectural and historical attribute data to analyze what buildings would be most costly to renovate and which would be of higher priority architecturally for renovation. Allison completed several consulting projects. One has already resulted in an improvement in bike rack access across campus. Another will guide the placement of a new path to the Powerhouse. Emma collected data on building characteristics that influence energy efficiency in order to create a map that can be used for prioritizing future sustainability projects. Heather collected GPS data on the prehistoric earthworks located on the campus to guide future excavations and groundwork. While each individual student worked with a specific aspect of the campus environment, a larger theme of getting this pertinent and detailed spatial data out was pursued. With the use of the GIS software ArcMap, the team is able to make this information widely available for the campus through avenues such as ESRI online software, faculty members, and posters with visual representations of the individual projects’ results.

Tales from Abroad: Digital Story Screening

Hannah Arata’17
Evanston, IL, USA
Major: Literary Studies
Minor: Art History

Laura Glick’16
Evanston, IL, USA
Majors: Critical Identity Studies; Political Science

Matthew Hodgkin’16
Yarmouth, ME, USA
Major: Psychology

Monica McKee’17
Middleton, WI, USA
Major: Political Science

Nate Muckley’16
Minnetonka, MN, USA
Major: Political Science
Minor: Health and Society

Stephanie Rosenwinkel’16
Elburn, IL, USA
Major: Health and Society
Minor: Biology

Alexander Schneider’16
Peoria, IL, USA
Major: Ecology, Evolution, and Behavioral Biology

Sponsor: Josh Moore

Joys, tribulations, insecurities, maps, oceans, making new friends and discoveries in unexpected places and...beer pong? These are just some of the topics touched upon in this collection of students’ unique experiences from their times abroad. From Ecuador to Copenhagen, England to Turkey, and The Netherlands to Australia, there’s a great amount of varied experiences in the possibilities of learning and discovering in a place other than our beloved “Beloit Bubble.” The images, sounds and voices within this collection of digital stories will resonate with anyone who has done anything remotely out of their comfort zone. These videos will also offer lessons and ideas to future study abroad students.
Selling Preschool STEM:
The Effect of Gendered Marketing and Parental Feedback on Children’s Persistence in a Challenging Task

Paula Green’16
River Forest, IL, USA
Major: Psychology

Katia Nonet’16
Clayton, MO, USA
Major: Psychology
Minor: Health and Society

Charles Spalding’16
Nashville, TN, USA
Major: Psychology

Sponsor: Emily Coyle

Women and girls are underrepresented in science, technology, engineering, and mathematics (STEM) at most levels. Gender Schema Theory suggests that early on, girls and boys gravitate toward different experiences, approaching what they perceive as culturally appropriate for their gender. Marketing toys “for girls” or “for boys” may influence children’s willingness to play, and consequently, their learning. One early contributor to the STEM gap may thus be gender-differentiated toys. An additional contributor may be gender differences in parental feedback during STEM-related tasks, which could deferentially socialize persistence or grit. Research suggests a positive link between grit and long-term success in a variety of domains. Yet, boys and girls receive different doses of positive versus critical feedback, which may, in turn, deferentially socialize children’s mindset and persistence in STEM. Although a large body of previous work examines differences in parental feedback to sons versus daughters, little looks at the influence of gendered play context on parents’ feedback. We examined the potential relationship between feedback and persistence in a later challenge, focusing on mothers’ and children’s dyadic play with a toy marketed explicitly to girls versus to boys.

Lighting Inventories of Beloit College Buildings:
What We Know and How We Can Change

Arianna Cocallas’16
Anchorage, AK, USA
Major: Environmental Geology
Minor: Biology

Megan Kerr’19
Saint Louis, MO, USA
Major: undeclared

Skylar Millar’17
Lewisburg, WV, USA
Majors: Environmental Geology; Dance

Nissa Parker’17
Lincoln City, OR, USA
Majors: Environmental Biology; International Relations

Miriam Wilch’19
Albion, MI, USA
Majors: undeclared

Sponsor: Lindsay Chapman

This year the Office of Sustainability’s Energy Team has been hard at work documenting the interior lighting of 30 buildings from across campus. Through the Facilities Department, we are working with a professional energy auditor to determine retrofit lighting options for a variety of buildings from the College’s oldest Middle College to some of the College’s newer residential buildings like Aldrich, Chapin and Brannon. The Energy Team will present their methodology and also place their results in the context of impacts to campus electricity and natural gas usage. Want to gain a better understanding of campus wide energy usage and what can be done personally to save energy on the Beloit College campus? Always wondered about the energy savings impact of LEDs or occupancy sensors? Come learn from the Sustainability Office’s Energy Team, as they present their results.