Loyola Marymount University presents

Fifth Annual
Undergraduate Research Symposium

Saturday, March 23, 2013
University Hall | 8:30am - 4:30pm
Cover Design by:

Gina Hirose, Studio Arts: Graphic Design, 2014
Sara Layon, Studio Arts: Graphic Design, 2014
Garland Kirkpatrick, Faculty Advisor
March 23, 2013

“Tell me and I’ll forget; show me and I may remember; involve me and I’ll understand.”
Chinese proverb

Dear LMU Students, Faculty, Staff, and Guests,

Welcome to the Fifth Annual Undergraduate Research Symposium! This event has become a campuswide tradition celebrating the very best in faculty-mentored undergraduate research and creative activity at LMU. It reflects Loyola Marymount’s unwavering commitment to academic excellence both inside and outside of the classroom.

This year we are pleased to feature the work of nearly 350 students from all five undergraduate colleges and schools. We offer you an abundance of intellectual sessions in which you are invited to sample the diverse offerings. There are 114 posters, 86 papers in 29 oral sessions, and 4 panels. In addition, there are studio arts displays and 9 films, most emanating from work abroad. You will hear debates on domestic and foreign policy, views about contemporary literature to the classics of ancient Greece and Rome, the positive and negative approaches to educational effectiveness in grades K-12 and deaf education, and theological and philosophical perspectives on issues of the past and present. Students have created sustainability models at LMU and are working to support renewable energy policies in developing countries. They are also contributing to the current conversations about domestic and global economic policies. We also have papers on insects, house finches, fruit flies, and LMU’s feral cats. The two poster sessions offer topics ranging from all manners of the sciences and engineering, business, the social sciences, and the arts.

The Undergraduate Research Symposium provides an excellent opportunity for students, faculty, staff, parents, and members of the LMU community to actively engage with students who have been immersed in thought-provoking questions and challenging global issues. In an increasingly complex world, it is important for students to take learning to a deeper and more integrated level. The work showcased today is evidence of this learning process.

Congratulations to this year’s presenters and to all the students and faculty participating in the 2013 LMU Undergraduate Research Symposium!

Sincerely,

Rae Linda Brown, Ph.D.
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<td><em>Throughout the Atrium</em></td>
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<td>Time</td>
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<td>8:30-8:50</td>
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<td>8:50-9:10</td>
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**Feminism, Literature, and Fashion**

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<tr>
<td>8:30-8:50</td>
<td>1222</td>
<td><strong>Jessica Baden</strong></td>
<td><strong>Feminism, Literature, and Fashion</strong></td>
<td><strong>Eliza Rodriguez y Gibson</strong></td>
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<td></td>
<td></td>
<td><em>History &amp; Chicana/o Studies</em></td>
<td>Punk's Not Dead In the Writing of Cherrie Moraga</td>
<td><em>Chicana/o Studies</em></td>
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<td>8:50-9:10</td>
<td></td>
<td><strong>Katherine Gates</strong></td>
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<td><strong>Aimee Ross-Kilroy</strong></td>
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<td></td>
<td></td>
<td><em>English</em></td>
<td>Girlhood On Fire: Female Virtue and the Power of Performance in The Hunger Games</td>
<td><em>English</em></td>
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<tr>
<td>9:10-9:30</td>
<td></td>
<td><strong>Meg Finney</strong></td>
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<td><strong>Michele Hammers</strong></td>
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<td><em>Communication Studies</em></td>
<td>Shifting Emphasis in the Fashion Industry</td>
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**Global Governance and Policy Debate**

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<td>8:30-8:50</td>
<td>1226</td>
<td><strong>Antoinette Bedros</strong></td>
<td><strong>Global Governance and Policy Debate</strong></td>
<td><strong>Feryal Cherif</strong></td>
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<td><em>Political Science, Philosophy</em></td>
<td>The Global Contract</td>
<td><em>Political Science</em></td>
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<tr>
<td>8:50-9:10</td>
<td></td>
<td><strong>Nolan Rivkin</strong></td>
<td></td>
<td><strong>Elizabeth Drummond</strong></td>
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<td><em>History, German &amp; Jewish Studies</em></td>
<td>Complicity and Resistance: an analysis of the antifascist film genre in the German Democratic Republic</td>
<td><em>History</em></td>
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<tr>
<td>9:10-9:30</td>
<td></td>
<td><strong>Gillian Dannis</strong></td>
<td></td>
<td><strong>Anna Muraco</strong></td>
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<tr>
<td></td>
<td></td>
<td><em>Sociology, Environmental Studies</em></td>
<td>Effects Anti-Gay Policy and Policy Debate in the United States on Young LGB Adults</td>
<td><em>Sociology</em></td>
</tr>
</tbody>
</table>
9:30-9:50  Sheila Koohpai  
Political Science, History  
Behind the American Lens: U.S. Middle East Policy  
Feryal Cherif  
Political Science  
Richard Fox  
Political Science

Sustainable Organizations

8:30-8:50  Hector Gonzalez  
Entrepreneurship, Spanish  
Aneese Bishara  
Entrepreneurship  
Gobind Manwai  
Entrepreneurship  
Andrew Vranicar  
Business Administration and Management  
Growing Pains at Diaper Dude  
Elissa Grossman  
Entrepreneurship

8:50-9:10  Angelica Cadiente  
Business Administration and Management  
Principle into Practice: A multi-case analysis of organizational structure and workplace culture  
Charles Vance  
Business Management

9:10-9:30  Kovid Puria  
Economics  
The Wooing Game: Group Formation in Experimental Economics  
Sean D’Evelyn  
Economics

ORAL SESSION II
9:35am-10:35am

Time  Location  Student Presenter  Title of Project  Faculty Menor

9:35-9:55  3218  Katelyn Jones  
English, Spanish  
Breaking Bread Together: Accompaniment-based, experiential learning as an effective model for professional internship  
Lorena Chavez  
Center for Service and Action

9:55-10:15  Adrien Jarvis  
Communication Studies  
Rwandan restorative justice: Reflections on a service abroad experience  
James Bunker  
Communication Studies

10:15-10:35  Christopher Wonder  
Film Production, Business, German  
Caleb Nyberg  
Marketing, Studio Arts  
Ethiopia - Past and Present: A view of the rich culture and history of Ethiopia as well as the promising future that lies ahead.  
Elias Wondimu  
Film Production
Microbiology

9:35-9:55  3222  **Nicolette Harmon**  
*Biology*  
A wild species of budding yeast, Saccharomyces paradoxus, is more resistant to cold temperature stress than the domesticated species, Saccharomyces cerevisiae  
Kam Dahlquist  
*Biology*  
Ben Fitzpatrick  
*Mathematics*

9:55-10:15  **Michael Onofre**  
*Biology, Philosophy, Theology*  
Characterization of Burkholderia unamae motility mutants  
Michelle Lum  
*Biology*

10:15-10:35  **Luana Salgado Bueno**  
*Biology*  
Analysis of antimicrobial activity in extract of Eichhornia crassipes  
Aulus Estevão Anjos de Deus Barbosa  
*Biology*

Christian Women and Theology

9:35-9:55  3226  **Eireen Ty**  
*Theology*  
Mary in Chains? A Theological Evaluation of Elizabeth Johnson’s Mariology  
Dorian Llywelyn  
*Theology*

9:55-10:15  **Nina Garofalo**  
*English, Philosophy*  
Meeting Christ in Purgatory: the Role of Women  
Anna Harrison  
*Theological Studies*

10:15-10:35  **Jaskeerat Malik**  
*History & European Studies, Theological Studies*  
What is Love? On the Mystical Theology of Hadewijch of Antwerp  
Anna Harrison  
*Theological Studies*  
Charlotte Radler  
*Theological Studies*

Social Identity and Well Being

9:35-9:55  3230  **Katelyn Wirtz**  
*Psychology*  
Are All Students the Same? Beliefs and Attitudes about Transfer Students  
Adam Fingerhut  
*Psychology*  
Vandana Thadani  
*Psychology*

9:55-10:15  **Elizabeth Flanigan**  
*Psychology*  
The Social Identity of Relationship Status in College Students  
Adam Fingerhut  
*Psychology*  
Jeremy Dunford  
*Psychology, Philosophy*

10:15-10:35  **Katie Rose Sanfiippo**  
*Psychology & Music*  
**Nicole Snipper**  
*Theatre Arts & Psychology*  
Benefits and Risks of the College Experience: multiple roles and identities in double majors  
Adam Fingerhut  
*Psychology*
The Science of Being Human

9:35-9:55  1403  Michelle Iafe  
Health & Human Sciences  
Deaf Education: Signs of Language and Culture  
Paul Harris  
English  
Ani Shabazian  
Education

9:55-10:15  Hannah Finlayson  
Film Production, Theology  
A Fine Line: Understanding the World of One Suffering from Borderline Disorder.  
Michaela Lavick  
Film and Television Production

10:15-10:35  Mariele Courtois  
Biology  
Understanding Causes of Neural Tube Defects: The Role of INTURNED in Embryonic Development  
Lee Niswander  
Biology  
Juliette Peterson  
Biology

Liturgical Traditions

9:35-9:55  1404  Alexander Garoutte  
Theological Studies & Physics, Applied Mathematics  
The Contemporary Role of the Catholic Pastor  
Michael Horan  
Theological Studies

9:55-10:15  Catherine Perl  
History  
Almsgiving in Augustine's Enchiridion  
Anna Harrison  
Theological Studies

10:15-10:35  Melanie Nguyen  
Liberal Studies & Theology, Mathematics  
Music and Chant in the Divine Liturgy: An exploration of Liturgical Music in the Orthodox Tradition  
Nicholas E. Denysenko  
Theological Studies

POSTER SESSION I  
10:30am-12:00pm

ORAL SESSION III  
10:35am-11:55am

Time  Location  Student Presenter  Title of Project  Faculty Mentor

Two Panels: British Literature and Social Justice

10:35-11:05  1222  Allison Croley  
English  
British Abolitionist Literature, 1780-1830  
Dermot Ryan  
English

Gillian Murphy  
Sociology, English

Kristen Trudo  
Psychology, English
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<th>Time</th>
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<tr>
<td>11:05-11:35</td>
<td>Rubyann Park</td>
<td>'So Check Out This Story...': Strategies of Representing Social Justice Conflicts</td>
<td>Political Science</td>
<td>11:35</td>
<td>Guadalupe Astorga</td>
<td>Civil Engineering</td>
<td>Liberal Arts</td>
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<td>11:15-11:35</td>
<td>Matthew Campos</td>
<td></td>
<td>Theological Studies</td>
<td></td>
<td>Christopher Ingram</td>
<td>Liberal Arts</td>
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**Insects, House Finches, and Fruit Flies**

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<th>Time</th>
<th>Speaker</th>
<th>Title</th>
<th>Department</th>
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<tr>
<td>10:35-10:55</td>
<td>Sophie Crinion</td>
<td>Effects of Fire on Insect Populations on Santa Catalina Island</td>
<td>Biology</td>
<td>10:55-10:55</td>
<td>Martin Ramirez</td>
<td>Biology</td>
<td>Biology</td>
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<tr>
<td>10:55-11:15</td>
<td>Tauras Vilgalys</td>
<td>Temperature-Influenced Termination of House Finch Breeding</td>
<td>Biology, Biochemistry</td>
<td></td>
<td>Heather Watts</td>
<td>Biology</td>
<td>Biology</td>
</tr>
<tr>
<td>11:15-11:35</td>
<td>Ellen Zirkelbach</td>
<td>Investigating the role of glutathione in cadmium tolerance of Drosophila melanogaster</td>
<td>Biology</td>
<td></td>
<td>Catherine McElwain</td>
<td>Biology</td>
<td>Biology</td>
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<td></td>
<td>Austin Nguyen</td>
<td></td>
<td>Biology, Biochemistry</td>
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**Human Rights**

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<th>Speaker</th>
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<th>Department</th>
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<tr>
<td>10:35-10:55</td>
<td>Arianne Malekzadeh</td>
<td>Humanitarian Intervention: Motivations and Directions in World Crises</td>
<td>Political Science, History</td>
<td>10:55-10:55</td>
<td>Feryal Cherif</td>
<td>Political Science</td>
<td>Political Science</td>
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<td>10:55-11:15</td>
<td>Paige Pardo</td>
<td>Taken For Granted: Domestic Workers Fight for Labor Rights in California</td>
<td>Political Science, Spanish</td>
<td></td>
<td>Chris Zepeda-Millán</td>
<td>Political Science</td>
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<td>11:15-11:35</td>
<td>Paulina Slagter</td>
<td>The Modern Multinational Corporation as a State</td>
<td>Political Science &amp; History</td>
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<td>Andrew Dilts</td>
<td>Political Science</td>
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## Science and Technology

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<td>11:35-11:55</td>
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<td>Understanding the Effect of Feral Cats on Loyola Marymount University's Campus Using Remote Sensing Cameras</td>
<td>Leslie Griffin, Orlando Chirikian, Lena Hunt, Mark Lee, Laura Terada</td>
<td>Environmental Science, Studio Arts &amp; Biology</td>
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~ LUNCH ~

11:30am-1:00pm
Roski Dining Room - West Side Atrium

Welcome Students, Faculty and Guests

Dermot Ryan, Ph.D., Director, Undergraduate Research

Student Reflections on Undergraduate Research

*Amanda Ballard (Junior, Biology)*
*Sophie Crinion (Junior, Biology, Mathematics)*
*Christopher Gipson (Senior, Classics, English)*
*Michelle Iafe (Junior, Health and Human Sciences)*
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<th>Title of Project</th>
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<tr>
<td>1:00-1:20</td>
<td>1218</td>
<td><strong>Claire Andreae</strong>&lt;br&gt;<strong>Film and Television Production</strong></td>
<td>The Representation of Jewishness in Irving Thalberg’s 1925 film version of Ben-Hur</td>
<td>Dermot Ryan&lt;br&gt;<strong>English</strong></td>
</tr>
<tr>
<td>1:20-1:40</td>
<td></td>
<td><strong>Emma Wakely</strong>&lt;br&gt;<strong>Film Production &amp; Economics</strong></td>
<td><em>Baba: A Journey Remembered:</em> a quest to explore a family member’s tragic journey from her homeland Ukraine to an unknown future in the 1940s</td>
<td>Michaela Lavick&lt;br&gt;<strong>Film and Television Production</strong></td>
</tr>
<tr>
<td>1:40-2:00</td>
<td></td>
<td><strong>Assumpta Oturu</strong>&lt;br&gt;<strong>French</strong></td>
<td>9/11 Narrative or The Construction of Memory</td>
<td>Véronique Flambart-Weisbart&lt;br&gt;<strong>French</strong></td>
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**Cultural Memory**

**Social Identity and University Values**

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<tr>
<td>1:00-1:20</td>
<td>1222</td>
<td><strong>John Liggins</strong>&lt;br&gt;<strong>Psychology, Dance &amp; Philosophy</strong>&lt;br&gt;<strong>Natasha Grabowski</strong>&lt;br&gt;<strong>Psychology</strong></td>
<td>The Next Best Fit: The Effect of Cultural Compatibility on Task Performance</td>
<td>Adam Fingerhut&lt;br&gt;<strong>Psychology</strong></td>
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<td>1:20-1:40</td>
<td></td>
<td><strong>Julia Singleton</strong>&lt;br&gt;<strong>Psychology &amp; Liberal Studies, History</strong></td>
<td>The Effects of Intersectionality Dissonance on Psychological Well-Being</td>
<td>Adam Fingerhut&lt;br&gt;<strong>Psychology</strong></td>
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<tr>
<td>1:40-2:00</td>
<td></td>
<td><strong>Lauren Cullen</strong>&lt;br&gt;<strong>Psychology, Studio Arts</strong>&lt;br&gt;<strong>Pamela Gonzalez</strong>&lt;br&gt;<strong>Psychology</strong>&lt;br&gt;<strong>Alyana Roxas</strong>&lt;br&gt;<strong>Psychology, STAR</strong></td>
<td>Campus Involvement and the Development of Social Awareness in LMU Students</td>
<td>Ricardo Machon&lt;br&gt;<strong>Psychology</strong></td>
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## DNA – Gene Expression

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<tr>
<td>1:00-1:20</td>
<td>1226</td>
<td><strong>Katrina Sherbina</strong>&lt;br&gt;<strong>Biomathematics, Biochemistry</strong></td>
<td>Dynamical Systems Modeling of the Cold Shock Response in Saccharomyces cerevisiae</td>
<td>Kam Dahlquist&lt;br&gt;Biology&lt;br&gt;Ben Fitzpatrick&lt;br&gt;Mathematics</td>
</tr>
<tr>
<td>1:20-1:40</td>
<td></td>
<td><strong>Salma Soltani</strong>&lt;br&gt;<strong>Biology, Philosophy</strong></td>
<td>Nodule Formation and Exopolysaccharide Production of Burkholderia tuberculosis Mutants</td>
<td>Michelle Lum&lt;br&gt;Biology</td>
</tr>
<tr>
<td>1:40-2:00</td>
<td></td>
<td><strong>Nicholas Rohacz</strong>&lt;br&gt;<strong>Biochemistry</strong></td>
<td>Continuous Time Markov Chain Models of Gene Regulatory Networks under the Environmental Stress of Cold Shock in Saccharomyces</td>
<td>Kam Dahlquist&lt;br&gt;Biology&lt;br&gt;Ben Fitzpatrick&lt;br&gt;Mathematics</td>
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## Global Economics

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<tr>
<td>1:00-1:20</td>
<td>1402</td>
<td><strong>Tracy Ip</strong>&lt;br&gt;<strong>Film Production, Film Studies</strong></td>
<td><em>Running Ghost</em>: a film that captures the struggles of biculturalism by following the story of an alienated young man as he reconciles his memories of the past in an ever-changing Hong Kong.</td>
<td>Michaela Lavick&lt;br&gt;Film and Television Production</td>
</tr>
<tr>
<td>1:20-1:40</td>
<td></td>
<td><strong>Hanna Bowens</strong>&lt;br&gt;<strong>Film and Television Production</strong></td>
<td><em>Mhóir Than a Team</em>: A small Irish island community’s struggle to maintain the tradition of their soccer club amidst emigration of the young players.</td>
<td>Michaela Lavick&lt;br&gt;Film and Television Production</td>
</tr>
<tr>
<td>1:40-2:00</td>
<td></td>
<td><strong>Alexis Pierce</strong>&lt;br&gt;<strong>Political Science &amp; Communication Studies</strong></td>
<td>The United Nations Security Council: National Interest and Nonintervention</td>
<td>John Parrish&lt;br&gt;Political Science&lt;br&gt;Feryal Cherif&lt;br&gt;Political Science</td>
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## Media: Twitter, YouTube and Colbert

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<th>Co-Presenters</th>
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<tr>
<td>1:00-1:20</td>
<td>1403</td>
<td><strong>Mario Caballero</strong>&lt;br&gt;<strong>Communication Studies, Spanish</strong></td>
<td>Dying for Twitter: Mexico’s Drug War and the Influence of New Media</td>
<td>Christopher Finlay&lt;br&gt;Communication Studies</td>
</tr>
<tr>
<td>1:20-1:40</td>
<td></td>
<td><strong>Patricia Howell</strong>&lt;br&gt;<strong>Communication Studies &amp; Dance</strong></td>
<td>Australian English in YouTube Videos: How Australians Assert Cultural and Linguistic Identity Through User-Generated Media</td>
<td>Christopher Finlay&lt;br&gt;Communication Studies</td>
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<tr>
<td>Time</td>
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<td>Student Presenter</td>
<td>Title of Project</td>
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</table>
| 1:40-2:00  |          | **Benjamin Herrera**  
*Communication Studies* | I am Journalism (And So Can You!): The Colbert Guide to Infotainment Narrative | **James Bunker**  
*Communication Studies* |

**ORAL SESSION V**  
**2:05pm-3:05pm**

<table>
<thead>
<tr>
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<th>Location</th>
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<tr>
<td><strong>Women and Identity</strong></td>
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</table>
| 2:05-2:25  | 1404     | **Stephanie Khoury**  
*Economics, Applied Mathematics* | Do Publicity and Stress Chase Women Out of the Political Race?                     | **Dorothea Herreiner**  
*Economics* |
| 2:25-2:45  |          | **Andrea Najarian**  
*Communication Studies, Journalism* | Transformative Gender Power Politics: The Case of Hillary Clinton                 | **James Bunker**  
*Communication Studies* |
| 2:45-3:05  |          | **Asha Weisman**  
*Psychology, Dance* | Almighty Father or Mother? Reactions to the Gender of God                          | **Adam Fingerhut**  
*Psychology* |

**Athletic Training and Yoga**

<table>
<thead>
<tr>
<th>Time</th>
<th>Location</th>
<th>Student Presenter</th>
<th>Title of Project</th>
<th>Faculty Mentor</th>
</tr>
</thead>
</table>
| 2:05-2:25  | 3218     | **Nathan Reyes**  
*Health and Human Sciences  
(Pre-Medicine)* | Elastic Band Loading and Volume Quantification For Combined Free Weight and Elastic Band Bench Presses and Squats | **Todd Shoepe**  
*Health and Human Sciences* |
| 2:25-2:45  |          | **Daniel Echeverry**  
**Hannah Dove**  
**Christopher Pieterick**  
*Athletic Training* | A Comparison of Heat Modalities and Vibration Plate Therapy on Hamstring Flexibility within an Active Population | **David Ramirez**  
*Health and Human Sciences*  
**Sarah Strand**  
*Health and Human Sciences* |
| 2:45-3:05  |          | **Steven Munassi**  
*Natural Science* | Effects of Salamba Sirsasana on Heart Rate Variability in Advanced Yoga Practitioners | **Silvie Grote**  
*Health and Human Sciences* |

**Intercultural Communication and the Public Sphere**

<table>
<thead>
<tr>
<th>Time</th>
<th>Location</th>
<th>Student Presenter</th>
<th>Title of Project</th>
<th>Faculty Mentor</th>
</tr>
</thead>
</table>
| 2:05-2:25  | 3222     | **Aili Watanabe**  
*Communication Studies* | The Effects of Othering and Orientalism on Twitter During the Great North East Japan Earthquake | **Christopher Finlay**  
*Communication Studies* |
| 2:25-2:45  |          | **Hayley Thayer**  
*Communication Studies* | “Chains and Whips Excite Me”: The Carnivalesque as a Mode of Performative Reclamation | **Emily Ravenscroft**  
*Communication Studies* |
2:45-3:05  Cady McLaughlin  
*Modern Languages & Asian and Pacific Studies*  
From Art to Obscurity: The Evolution of the Portrayal and Perception of Homosexuality in Eastern Asia  
Fatima Wu  
*Asian and Pacific Studies*

---

**Climate Change and Sustainability**

2:05-2:25  3226  Claire Andreae  
*Film and Television Production*  
*Green Team*: A film about LMU's exemplary recycling program.  
Thomas Simon  
*Film and Television Production*

2:25-2:45  Michael George  
*Political Science*  
Determining the factors to successful renewable energy policy in developing countries - a cross-national comparative analysis  
Gene Park  
*Political Science*

---

**“Forgive Me Homie”: Films of Happiness, Love and Tea**

2:05-2:25  3230  Mina Mohaddess  
*Film Production*  
Forgive Me Homie  
Charles Swanson  
*Film Production*

2:25-2:45  Samantha McRoberts  
*Film and Television Production*  
Michaela Lavick  
*Film and Television Production*

2:45-3:05  Megan Smallen  
*Film Production, Business Administration & Spanish*  
"A Spot of Tea": tradition, family, friendship, and remembrance - the portrait of an Edinburgh tearoom founder.  
Michaela Lavick  
*Film and Television Production*

---

**Art and Literature Reconsidered: A Virtual Museum, Animation and Veterans**

2:05-2:25  1218  Leslie Rodriguez  
*Political Science*  
Intra-cultural Variations on Death: a Guatemalan Example  
Karen Mary Davalos  
*Political Science*

2:25-2:45  Amanda Goad  
*Animation*  
Generating Fur in 3D Animation  
Adriana Jaroszewicz  
*Animation*

2:45-3:05  Kimberly Wolfe  
*History, Jewish Studies, Archaeology & Political Science*  
Creative Expression of Post-Traumatic Stress from Veterans of World War II  
Lawrence Tritle  
*History*
## POSTER SESSION II
3:00pm-4:30pm

<table>
<thead>
<tr>
<th>Time</th>
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<th>Student Presenter</th>
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<tbody>
<tr>
<td>3:00-3:20</td>
<td>3218</td>
<td>Danielle Shank</td>
<td>The Modal Collapse in Spinoza’s Metaphysical System</td>
<td>Brad Stone</td>
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<td>Screenwriting &amp; Philosophy</td>
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<td>Philosophy</td>
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<tr>
<td>3:20-3:40</td>
<td>J. Runia</td>
<td>Philosophy</td>
<td>System H: a logic of opposition</td>
<td>Brad Stone</td>
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<td>Philosophy</td>
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<tr>
<td>3:40-4:00</td>
<td>Caroline Liviakis</td>
<td>Dance &amp; Philosophy, Environmental Science</td>
<td>On Identity Statements</td>
<td>Brad Stone</td>
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## ORAL SESSION VI
3:00pm-4:00pm

### Logic

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<td>3:40-4:00</td>
<td>Caroline Liviakis</td>
<td>Dance &amp; Philosophy, Environmental Science</td>
<td>On Identity Statements</td>
<td>Brad Stone</td>
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### Educational Policy

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<tr>
<td>3:00-3:20</td>
<td>3222</td>
<td>Allison Goldberg</td>
<td>Detention to Detainment: The Relationship Between School Punitive Policies and Juvenile Incarceration Rates in Diverse School Districts</td>
<td>Richard Fox</td>
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<td>Political Science, Peace Studies</td>
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<td>Andrew Dilts</td>
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<td>3:20-3:40</td>
<td>Katherine McGrath</td>
<td>Political Science, Business Administration</td>
<td>Developing a Quality Rating Standard for Parent Involvement in Early Education: An Analysis of Parent Involvement in California Preschools</td>
<td>Lance Blakesley</td>
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<td>Richard Fox</td>
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### Two Panels: Feminist Rhetoric and Promoting Resilience

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<td>3:00-3:30</td>
<td>3226</td>
<td>Kristen Trudo</td>
<td>Mindfulness as a Buffer in the Face of Rejection: Promoting Resilience</td>
<td>Maire Ford</td>
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<td>Psychology &amp; English Vanessa Urbina Psychology</td>
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<td>Jordan Webb</td>
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3:30-4:00

**Bailey Grantz**
Breanna Dungca
Ericka Schwering
*Communication Studies*

**Christina Guzman**
*Business Administration and Management*

**Pioneering Voices in Feminist Rhetorical Theory**

James Bunker
*Communication Studies*
<table>
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<td>Alexander Antonow</td>
<td>A Cost-Benefit Analysis of a Policy of Public Water Fluoridation</td>
<td>Sean D’Evelyn</td>
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<td>Bianca Villasenor</td>
<td>Conservative Clusters in a Liberal Land</td>
<td>Fernando Guerra</td>
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<td>3</td>
<td>Natalie Hernandez</td>
<td>Community Development, Urban Revitalization, and Demographic Changes Surrounding Ports of LA and Long Beach</td>
<td>Mona Seymour</td>
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<td>Melanie Mendoza</td>
<td>Asian American Angelenos voting trends and how household income impacts outcomes compared to other ethnic groups</td>
<td>Brittany Machado</td>
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<td>Celia Guo</td>
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<td>Theadora Trindle</td>
<td>Reclaiming the Urban Alley</td>
<td>Mona Seymour</td>
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<td>Raquel Sena</td>
<td>Smart talent management: on the powerful amalgamation of talent management and knowledge management</td>
<td>Charles Vance</td>
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<td>Alison Clarizio</td>
<td>Supplemental Needs Trusts: Drafting and Funding Strategies for the Care of Special Needs Individuals</td>
<td>Ross Bengel</td>
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<td>Adam Byrne, Fernando Guerra</td>
<td>Social Media and Campaign Financing: The 2013 Los Angeles Municipal Primary</td>
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<td>Naomi Cahn, Brad Stone</td>
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<td>Alixandra Greenman, Richard Fox</td>
<td>The Severity of International Crime</td>
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<td>Katherine Henley, Fernando Guerra, Stephanie Anaya</td>
<td>Mayoral Candidates Coding in Communication</td>
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<td>Brendan Hughes, Fernando Guerra, Brianne Gilbert</td>
<td>Tracking Vote-By-Mail: A Comparative Study of Early Voting and At-Poll Voting Behavior in the city of Los Angeles</td>
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<td>Sahar Mansoor, Feryal Cherif</td>
<td>Women's Land Rights and Inheritance Rights in India: A Case Study of Women in Karnataka</td>
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<td>Ramona Martinez, Andrew Dilts</td>
<td>Infidel, Foreign, and Barbarous: The Habituated Aversion to Socialism in U.S. Popular Opinion</td>
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<td>16</td>
<td>Christopher Mosser, Fernando Guerra, Brianne Gilbert</td>
<td>A Comparison of Los Angeles Polling Place Quality from the 2010 Gubernatorial Election and the 2012 Presidential election</td>
<td>Political Science, Sociology, Center for the Study of Los Angeles</td>
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<td>Elizabeth Naai, Stephanie Limoncelli</td>
<td>NGO Influence in Sex and Labor Trafficking of South Asia</td>
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<td>Deanna Newton, Cassandra Veney</td>
<td>The Verdict: Constant Error in Prosecuting Human Trafficking Crimes around the Globe</td>
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<td>Lucy Olson, Evan Gerstmann</td>
<td>Species Versus Citizens: Evaluating the Constitutionality of the ESA</td>
<td>Political Science, English Literature</td>
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17
20  Courtney Olson  
*Political Science, English*
Understanding Women's 'Body Politics' in the United States: Acts of Modern Fraternal Patriarchy from a Crisis in Kinship Theory  
Sina Kramer  
*Philosophy*

21  Sarah Palacios  
*Political Science, Sociology*
LA Votes: Mayoral Election 2013  
Fernando Guerra  
*Political Science*
Brianne Gilbert  
*Center for the Study of Los Angeles*

---

**Psychology**

22  Julia Ayeroff  
*Psychology, Business Administration*
Accent Prestige: Perceptions of Intelligence Influence Persuasion  
Andrew Lac  
*Psychology*

Alyssa Loomer  
*Psychology, Sociology*

Ashley Miller  
*Psychology*

Lauren Uhl  
*Political Science*

---

23  Andrew Earle  
*Psychology, Screenwriting*
OJ Simpson Effect: How Celebrity Reputation Impacts Eyewitness Credibility  
Judith Foy  
*Psychology*

Allison Block  
*Psychology*

Jennifer Brooks  
*Sociology & Psychology, Biochemistry*

Aisling Cassidy  
*Natural Science*

Nora Mansfield  
*Psychology, STAR*

---

24  Lauren Frazier  
*Psychology & African American Studies*
Beet the System! A Follow-Up Case Study on Youth Organizing: Childhood Obesity and Food Injustice in Urban Communities  
Cheryl Grills  
*Psychology*

Jennifer Martinez  
*Psychology & English, Spanish*

Robyn Rutherford  
*Psychology*

Sandra Villanueva  
*Psychology*
25  **Caitlyn Handy**  
*Psychology & Economics*  
Working memory training improves behavioral self-regulation in academically at-risk kindergarteners  
**Judith Foy**  
*Psychology*

25  **Monique Arrigotti**  
*Psychology, Business Administration*  

25  **Nicole Froideveaux**  
*Psychology*  

25  **Natalie Hajran**  
*Psychology, Political Science*  

25  **Erica Medina**  
*Psychology, Political Science*  

25  **Jenny Scheller**  
*Psychology, STAR*  

25  **Liana Zannis**  
*Psychology*  

26  **Autumn Nailes**  
*Psychology, Sociology*  
Effects of Stress-Related Factors on Eyewitness Memory  
**Judith Foy**  
*Psychology*

26  **Amber Nailes**  
*Psychology*  

26  **Arts ~ Screenwriting ~ Communication Studies ~ Philosophy**

27  **Maria Ruiz**  
*Studio Arts, Chicana/o Studies*  
Guadalupe in Highland Park Exhibition  
**KarenMary Davalos**  
*Chicana/o Studies*

28  **Karrena Gordon**  
*Business Administration (Entrepreneurship), Studio Arts*  
ONE  
**Kathleen McLaughlin**  
*Art and Art History*

29  **Isabel Casso**  
*Art History & Economics*  
Effects of California Redistricting on Minority Elected Officials in the California State Assembly and State Senate  
**Fernando Guerra**  
*Political Science*

29  **Alison Sackerson**  
*Political Science*  

30  **Philippa Adams**  
*Screenwriting, Chinese*  
Chinese Students’ Attitudes Towards Counselling and Psychological Services  
**Chan Lù**  
*Modern Languages and Literatures*

31  **Mukta Mohan**  
*Communication Studies*  
Westchester Sidewalk Evaluation  
**Fernando Guerra**  
*Political Science*

32  **Carolina Nuñez**  
*Philosophy & Spanish*  
The Seven Categories of the Symbol  
**Brad Stone**  
*Philosophy*
Graphic Design

33 Matthew Baum  
*Urban Studies, Economics*  
Reconceiving 'American Progress' in the 21st Century  
Garland Kirkpatrick  
*Graphic Design*

34 Masami Chin  
*Studio Arts & Psychology*  
Being: An Exploration of the Human Experience  
Garland Kirkpatrick  
*Graphic Design*

35 Kyle Crowther  
*Studio Arts, English*  
Mobile Rail™: Mobile Web Application  
Garland Kirkpatrick  
*Graphic Design*

36 Rachel Fell  
*Studio Arts: Graphic Design*  
Enjoy The Truth  
Garland Kirkpatrick  
*Graphic Design*

37 Nicholas Garcia  
*Studio Arts: Graphic Design*  
Exposing Cancer: Going Public to Raise Awareness  
Garland Kirkpatrick  
*Graphic Design*

38 Sara Martinez  
*Studio Arts: Graphic Design*  
Seeing is Knowing: Using Graphic Facilitation for Self-Growth and Discovery  
Garland Kirkpatrick  
*Graphic Design*

39 Mary Payne  
*Studio Arts: Graphic Design*  
Complete Expression  
Garland Kirkpatrick  
*Graphic Design*

40 Meghan Toomayan  
*Studio Arts: Graphic Design*  
Breaking Conventions: A New Market for the Male Condom  
Garland Kirkpatrick  
*Graphic Design*

41 Matthew Yamane  
*Studio Arts: Graphic Design*  
Posterizing Identity: The Power of Graphic Design  
Garland Kirkpatrick  
*Graphic Design*

POSTER SESSION II
3:00pm – 4:30pm  
Atrium and 1st Floor Hallways

<table>
<thead>
<tr>
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<tr>
<td>42</td>
<td>Nicole Anguiano</td>
<td>Discovery and Characterization of Novel Mycobacteriophages Nargle and King Leonidas</td>
<td>Carl Urbinati</td>
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<td>Lisa Brehove</td>
<td>Biology, Theatre Arts</td>
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43  Amanda Ballard  
Sheida Davoodian  
Beatriz Guerra  
Anita Simonian  
Laura Terada  
*Biology*  

Historical Biogeography of Bladderpod Peritoma arborea (Capparaceae)  
Martin Ramirez  
*Biology*

44  Michael Carline  
*Biology*  

Do Mussels Adjust Orientation to Minimize Thermal Stress?  
Wes Dowd  
*Biology*

45  Andrew Carranco  
*Biology*  

Recording Seasonal Trends of BVOCs from Native and Non-Native Vegetation  
Nicole Bouvier-Brown  
*Chemistry & Biochemistry*

46  David Chirikian  
James Sobotka  
*Biology*  

Vascular anatomy of the succulent shoot tissue of *Salicornia pacifica*  
Philippa Drennan  
*Biology*

47  Shelby Chun Fat  
*Biology*  

Analyzing Phototactic Behavior in the Drosophila melanogaster model for Alzheimer's Disease  
Catherine McElwain  
*Biology*

48  Erich Eberts  
Nathan Pihl  
*Biology*  

Isolation and Characterization of Phages Bullseyed, Sumatra and Soto  
Yiwen Fang  
*Biology*  
Carl Urbinati  
*Biology*

49  Jesse Haro  
Katie Fusco  
*Biology*  

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2-adic Valuations of Stirling Numbers of the Second Kind
Alyssa Bowden

The Stirling numbers of the second kind, denoted by $S(n, k)$, count the number of ways to distribute $n$ numbered objects into $k$ boxes so that no box is left empty. These numbers arise in a wide variety of mathematical fields, and also have applications in computer science. In an investigation of fractal behavior, Tewodros Amdeberhan, Dante Manna, and Victor Moll studied the 2-adic valuations of Stirling numbers – the highest power of 2 that is a factor of $S(n, k)$ – with fixed values of $k$ and varying values of $n$. As a consequence of their findings, Amdeberhan, Manna, and Moll put forth a conjecture regarding the fractal behavior of this valuation, proved for $k \leq 2^t$ by Curtis Bennett and Edward Mosteig. In this project, we extend this conjecture to two dimensions by allowing $n$ and $k$ both to vary. We further formulate and investigate conjectures about the behavior of $S(n, k)$ when $k$ is one more than a power of 2, i.e. when $k = 2^t+1$ for $t = 2, 3, 4, \ldots$. We have now established computational evidence that in this case, the proportion of values of $n$ for which $S(n, 2^t+1)$ is divisible by $2^s$ is precisely $1/2^s$.

A 9/11 Narrative or The Construction of Memory
Assumpta Oturu

The popular narrative about a historical event has often shaped the collective memory. Today 9/11 can be said to have had a profoundly global impact. It is this nature of global outreach that influences the study’s focus on how a popular narrative enhances the construction of a national or collective memory. The study investigates not only the formulation of the narrative that emphasizes the language and the selected words used repeatedly in the immediacy of 9/11, but also how these words became embedded in the collective memory overtime. Today, America and the world seem to share a similar narrative and memory of 9/11. President George Bush’s speeches and the official administration rhetoric dominated the mass media’s informational airwaves. In fact, the administration crafted seemingly uniform reports to appeal to the American national psyche. This study will analyze the presidential speeches and administrative rhetoric as well as provide a survey of selected groups of individuals, individual responses, and reactions to specific words such as al-Qaida, Islamist, terrorist, terrorism and the War on terror. So, the survey questionnaire will solicit individual perceptions and personal interpretations of the meaning of the events of 9/11. From these findings, an analogy will be made to the Vichy regime’s political narrative during the German occupation of France. The Vichy regime effectively used propaganda to influence French opinion and to question their patriotism. In comparing these historical events, the study also investigates the impact of a popular narrative on a national memory and identity. The study concludes with a synergy of documentable evidence that supports the assertion that a popular narrative ultimately becomes the construct of the national or collective memory.

Analysis of antimicrobial activity in extract of Eichhornia crassipes
Aulus Estevão Anjos de Deus Barbosa, Luana Salgado Buen

Infections caused by antibiotic-resistant bacteria have caused serious problems to public health. In order to reduce the growing number of infections caused by antibiotic-resistant bacteria, this report proposes the search for antimicrobial peptides (AMPs) for further development of new drugs. Plants have several classes of AMPs; these peptides were extracted from *Eichhornia crassipes* (Water Hyacinth). *E. crassipes* is originally from Brazil, however it can be found in various countries. This plant is known to be able to absorb calcium, magnesium, sulfur, iron, aluminum, copper, zinc, manganese, nitrogen, potassium, phosphorus which can affect the growth of other plants. This absorbing capacity has been used to recover contaminated areas such as a swine wastewater in China to reduce the excess phosphorus and
In this research, we extracted peptides from the leaves of *E. crassipes*. We mashed the leaves with two different buffers: one to preserve the proteins better and the other to be our control. The extract was centrifuged, lyophilized, quantified and challenged against the following bacteria: *Klebsiella pneumoniae* (ATCCBAA-1705), *Staphylococcus aureus* (ATCC-25923) and *Escherichia coli* (ATCC-8739). However, the first buffer interfered with the results of the bioassays and the protein extract with the second buffer didn’t inhibit the bacteria growth, which was probably due to low antimicrobial proteins concentration in the extract. This could be predominantly because we cultivated the plants in a safe environment while extracting those peptides, since the plant wasn’t in contact with polluted water it probably had a lower APMs concentration.

**A Comparison of Heat Modalities and Vibration Plate Therapy on Hamstring Flexibility within an Active Population**

Hannah Dove, Daniel Echeverry, Chris Pieterick

One of the most accepted methods to reduce the risk of injury is to ensure flexibility. Heat is a commonly used modality to achieve this; however recent studies suggest that the use of vibration platforms can also be used to increase flexibility. The purpose of this research study is to identify the effectiveness of vibration platforms to increase flexibility compared to other heat modalities. The heat modalities used as a comparison were moist heat packs, diathermy, and laser therapy. Testing was done at the hamstring complex and flexibility was measured through a sit and reach test. Volunteer test subjects (n=75) were between the ages of 18-25 and had a variety of activity levels. The subjects were placed within either four different testing groups or a control group. Subjects were first instructed to perform a sit and reach test with both legs extended and one hand on top of another. After their flexibility was recorded those within the tested group had one of the four modalities applied to them. The control group rested for fifteen minutes. After the fifteen minutes of testing the subjects performed a second sit and reach test, and the difference was recorded. Results showed p-values of 0.22, 0.34, 0.45 and 0.71 for diathermy, vibration plate, moist heat and laser respectively. Although there was no statistical significance between any of the different testing groups, the results show clinical relevance for the use of certain modalities that are generally not used due to cost, such as diathermy and vibration plates.

**A Comparison of heat tolerance for Dudleyas and Sedums used for greenroofs in southern California**

James McDonald

Greenroofs provide a wide range of ecological benefits in urban settings by increasing energy efficiency, decreasing stormwater runoff, and ameliorating urban heat island effects. In developing a plant palette for greenroofs in southern California it was found that native Dudleyas had greater survival during the summers than the industry-standard Sedums. This study further investigated the response of Dudleya and Sedum species to heat-stress. Tissue collected from plants in greenroof mesocosms at LMU in fall and spring were subjected to a 1-hour dry heat stress ranging from 47°C to 59°C. Tissue samples were subsequently cut into 3-cell-thick sections and placed in 1% (w/v) neutral red solution in a 0.2M phosphate buffer (7.5 pH) for 10 minutes and then rinsed in buffer for 10 minutes. Neutral red is a vital stain and is not taken up by dead cells. The ratio of stained cells to unstained cells showed the reaction of each species to increased temperatures and heat-stress. Both Dudleyas and Sedums showed a decline in cell survival at temperatures above 47°C and most almost all cells were dead at 59°C. Sedum species showed a steeper decline of stained cells with increasing temperature than the Dudleya species suggesting that the Dudleyas are more heat tolerant. Tissue collected after the summer showed less cell survival than those collected after the winter. Summers in southern California are dry and the winters tend to be moister. This suggested that plants can withstand higher temperatures after winter when they have a higher water content.
A Comparison of Los Angeles Polling Place Quality from the 2010 Gubernatorial Election and the 2012 Presidential election
Christopher Mosser, Genesis Tenorio

The right to vote is now a fundamental right. However, until recently there was no list of specific voter rights until the passage of the Voter Rights Act (1965). Since it was created, it has caused significant changes in the quality of polling places and voting process. Previous research shows that polling places are not yet equal in access or comfort for citizens (Barreto, Cohen-Marks, & Woods 2008). For instance, polling places in higher income and white communities have the best accessibility, more resources, and are safest. In this study we examine whether there have been significant changes overtime in the quality of polling places and how it varies within diverse neighborhoods in the city of Los Angeles. We do this by comparing Polling Place Quality Checklists (PPQC) collected during the 2010 Gubernatorial Election. The PPQC is a survey tool developed by the Center for the Study of Los Angeles to measure a multitude of factors related to polling place parity. In this study we focus specifically on accessibility and safety. By locating the discrepancies within individual polling place scores we then examine the demographics of the highest-ranking polling places to determine if race, location, and socio-economic status impact a given polling place’s score on the PPQC. The responses to the questions were scored and analyzed according to location by comparing (valley and non-valley), as well as ethnicity (white, Latino, African American, & Asian American). We expect to find that non-white and lower income polling places have improved since the 2010 Gubernatorial Election.

A Cost-Benefit Analysis of a Policy of Public Water Fluoridation
Alexander Antonow

The Center for Disease Control and Prevention (CDC) cites a study claiming that the cost saving benefits of public water fluoridation amount to about $15.95 per person per year in a small community and $18.62 in a large community. However, it overlooked many negative effects of ingested fluoride, including potentially dangerous health side effects that we predicted might greatly reduce the net benefit from a policy of fluoridation. In this study, we examined the physical and neurological effects of fluoride on the body and translated it into lost worker productivity and increased medical costs in order to arrive at a per-person, per-year value of ingesting the safe amount of fluoride daily, as proposed by the CDC.

A Fine Line
Hannah Finlayson

While studying abroad in Bonn, Germany, I was required to create a 10-minute documentary highlighting any subject of my choice. A Fine Line documents the life of Petra, a woman suffering from Borderline Personality Disorder. This disorder affects the way a person controls emotions and impulses. They experience rapid mood changes and can have urges to harm themselves. While not addressed in the documentary, I have a personal interest in mental illnesses. When I was a senior in high school, my brother was hospitalized for schizophrenia. Although it was later determined he suffered from epilepsy, the memories I have from the hospital haunt me even now. These seemingly “insane” people were once someone’s neighbor, grocer, brother. I think we all have the capacity to go over the edge, to lose who we are mentally. There is a fine line between the so-called sane and the insane. Despite what was sure to be a language barrier, talking and communicating with Petra was easy; her understanding of English was impressive. Having the documentary in her native German made answering easier for her. Now more than ever do we need to bring awareness to mental disorders; we should not be wary or fearful, but rather accepting that though different, they are still human. The human condition asks the question of what it is to be human. Our uniqueness sets us apart yet we are all inherently similar. We can learn about ourselves through Petra. She has everything against her, yet continues to fight.
A Quantum Chemical Investigation of Iron-Based Water Oxidation Catalysts
Kevin Joerger

Current attempts to develop sustainable, clean energy sources have made the possibility of obtaining fuel from water and sunlight through water oxidation a topic of great interest. This chemical process must be driven by a catalyst. Many effective water oxidation catalysts are based on expensive, scarce transition metals such as ruthenium, and thus cannot be implemented on a large scale. However, some recent studies have shown that iron coordination complexes may be able to serve as efficient water oxidation catalysts. Here, we use ab initio quantum chemistry calculations based on density functional theory to investigate these iron complexes and to predict redox potentials between different states along two competing proposed mechanisms for the catalytic cycle. The detailed nature of the bond formed between the iron atom and the oxygen from the water is investigated, and the competing reaction cycles are explored to determine which provides a better picture of the true cycle as well as to understand the effect of chemical modifications of the tetradebate ligands on these results. We note that the metal-oxygen bond is significantly shortened and strengthened for this 3d metal relative to that formed with ruthenium. This research may help guide further experimental investigations into designing an effective iron-based water oxidation catalyst.

A Quantum Perspective on the Evolutionary Development of Oxygenic Photosynthesis
Nicole Jackson

A manganese-based structure (Mn4Ca) aids in the process of photosynthesis; a plant process of converting light energy (solar) into chemical energy. During photosynthesis Mn4Ca retains a cluster shape of four atoms and one Ca ion called the oxygen evolving complex (OEC) that when oxidized to a high potential by metal ions of 2+ or 3+ accomplishes the important process of water oxidation - splitting a water molecule into protons and oxygen molecules - in Photosystem II (PSII). Although some synthetic catalysts have been developed, these generally involve heavy metals that are expensive and toxic to the environment. Some of the evolutionary reasons related to why eukaryotic plants might have began employing manganese as in PSII are discussed in terms of recent research developments as well as new insights. By investigating single-site manganese complexes that have been shown to be effective in water oxidation catalysis; we have explored the local bonding interactions related to the evolutionary advances of nature employing manganese-based catalysts. These results are helpful in understanding the catalytic mechanisms utilized by early phototrophic oxygenic bacteria and also may provide insight into the design of efficient and inexpensive synthetic water oxidation catalysts.

A Spot of Tea
Megan Smallen

Initiated by the SFTV European Study Abroad Program, the purpose of this research was to achieve a documentarian’s greatest reward—to gain new perspectives while learning from and about others. Dependent on the willingness to experience another’s reality, capture life truthfully, and take an interest in someone else’s achievements, struggles, and routines, this project led to the successful production of a ten-minute documentary about tradition, family, friendship, and remembrance. A portrait of a tea room founder in Edinburgh, Scotland, "A Spot of Tea" includes supplemental tea shop footage and interviews with the founder of Loopy Lorna’s Tea House, Gaynor Salisbury, to capture the tea room’s quirky atmosphere and bring to life both Gaynor’s current struggle with cancer and perpetual passion for life. Despite her illness, Gaynor continues to fight and, through her shop, remains connected to those she loves. The successful completion of this project allowed me to fully grow as a person—to realize I
A wild species of budding yeast, Saccharomyces paradoxus, is more resistant to cold temperature stress than the domesticated species, Saccharomyces cerevisiae

Nicolette Harmon

The growth rate of a wild species of yeast, Saccharomyces paradoxus, was compared to the domesticated species, Saccharomyces cerevisiae, when both were subjected to different temperatures and inhibitory drugs. We found that S. paradoxus had a shorter doubling time than S. cerevisiae at both 30 and 13°C, and that S. paradoxus grew significantly faster at the cold temperature than was expected by its warm temperature growth rate. Furthermore, S. paradoxus was more resistant to the growth-inhibitory drugs, rapamycin and caffeine, than S. cerevisiae. Finally, we performed a DNA microarray experiment on S. paradoxus subjected to cold shock to determine the gene expression changes that occur during resistance to cold stress. S. paradoxus cells were grown to an OD600 of 0.2 at 30°C. Cells were harvested and then the remainder of the culture was transferred to a 13°C incubator. Cells were then harvested after 15, 30 and 60 minutes of cold shock. After 60 minutes of cold shock the cells were returned to 30°C for recovery; cells were harvested after 30 and 60 minutes of recovery. A preliminary analysis of the data was carried out using software called STEM, which clusters genes with similar expression profiles and provides the Gene Ontology categories that belonged to genes in each cluster. The main cluster of genes that were up-regulated during cold shock and down-regulated during recovery were associated with ribosome biogenesis. This is similar to S. cerevisiae. Further analysis is needed to determine differences in gene expression between the two species of yeast.

Accent Prestige: Perceptions of Intelligence Influence Persuasion

Julia Ayeroff, Alyssa Loomer, Ashley Miller, Lauren Uhl

This research examined Accent Prestige theory which states that a speaker’s accent is one of the most important linguistic cues a listener uses to draw conclusions to form impressions of the speaker. There were 99 participants (43 males and 66 females) between the ages of 18 and 23 (Mage = 19.86, SDage = 1.32) in this study. Participants were recruited at LMU and completed the experimental study in vacant study rooms. College students listened to an argumentative message spoken in a Standard English accent (otherwise known as the Queen’s English or a British accent) or a Southern American English accent. The audio recordings, recorded in both types of accents by the same speaker, concerned the positive aspects of eating organic food and represented the experimental factor. The quasi-independent factor was measured by the question “Do you think the person speaking on the recording is intelligent?” The researchers’ personal computers were used to play the audio recordings and record the participants’ responses to the dependent variable. The dependent variable was participants’ responses on a Likert scale, from 1 (completely disagree) to 5 (completely agree) to questions including, “This speaker convinced me to eat more healthfully.” A 2 x 2 analysis of variance (ANOVA) was performed, with the independent variables of type of accent and perceived intelligence of the speaker on the dependent variable of persuasion (degree to which the participant was convinced by the audio message). Researchers randomly assigned participants to one of the two levels of the independent variable using a random number generator. There was a significant main effect for intelligence, F(1, 95) = 13.28, p = .00. Participants who perceived the speaker to be intelligent were more convinced of the argument. Surprisingly, a similar analysis of variance revealed that the same was not true for accent type. Accent type was not statistically significant, F(1, 95) = .43, p = .513. Likewise, the interaction
between accent and intelligence was not statistically significant, $F(1, 95) = .23, p = .63$. These findings suggest that British accents are not more persuasive than Southern American accents when it comes to the topic of organic foods.

Almighty Father or Mother? Reactions to the Gender of God
Asha Weisman

Within modern society, God is almost entirely referred to as male. While many people simply accept that their higher power is characterized as male, this utilization of language systematically excludes women from seeing themselves in the image of God. It is known that language affects perception (Stern and Karraker, 1989) and systematic exclusion harms well-being (Fischer & Holz, 2007), but it is not clear what effects the gender of God has on females and their mental health or feelings about themselves. It is also not clear what effects male language in reference to the deity has on females’ attitudes toward women as a group. The present study asks female undergraduates to write about either a male God, a female God, or a God with no gender and then asks them to complete several surveys about their mental and emotional state as well as their attitudes toward women. It is predicted that when God is presented as male that females will show lower overall well-being than when God is not assigned a gender, which in turn will lead to lower overall well-being than when God is presented as female. Sexism will be measured as an exploratory variable. It is expected that the intensity of these effects will be moderated by females’ strength of religious and gender identity such that women who strongly identify with their religion and gender will show greater reactance than women who do not identify with their religion or gender.

Almsgiving in Augustine’s Enchiridion
Catherine Perl

In this paper, I offer an analysis of Augustine of Hippo’s understanding of almsgiving. I do so based on a close reading of the fourth-century theologian’s Enchiridion, an introduction to the basic content of Christianity. My research indicates that the practice of almsgiving was, to Augustine, an expression of love and a central Christian responsibility; it is one that every Christian must take up in order to achieve salvation. I consider Augustine’s argument for the centrality of almsgiving as religious practice: to give alms is to follow in the footsteps of Christ, who gave alms in the form of giving his life out of love for other humans. I examine Augustine’s sense of contemporary Christian misunderstandings of almsgiving. I elaborate on what almsgiving was to Augustine. Thus, for example, he considered expressions of mercy and of forgiveness as forms of almsgiving, and almsgiving was, as well, a giving to the self. Augustine enumerates additional ways of giving alms, including providing others with food, clothing, hospitality, companionship, comfort, and advice. I indicate the particular ways in which each of these means of giving contributes to the individual’s salvation. My study of Augustine’s Enchiridion underscores the complexity of his conception of almsgiving, revealing sophisticated theological inquiry associated with a mainstream early Christian practice. In doing so, my work contributes to wider scholarly discussions of late antique Christian religious thought and practice, notions of the relation between self and other, as well as to the study of early Christian conceptions of love.

An Approach to the Discretization of Arbitrary Surfaces with Regular Triangles
Terry Kong

Often times it is necessary to discretize arbitrary smooth surfaces into polygons, i.e. mesh the surface. For example, in order to render graphics or to perform 3-dimensional simulations, an object in 3-dimensions might be discretized into a mesh of quadrilaterals. In order to provide input to a simulation involving antennas, I was asked to develop an algorithm to mesh an arbitrary smooth surface with triangles, but with the constraint that they all be nearly equilateral. A widely used algorithm for generating meshes of n-simplexes (a generalized triangle in the $n^{th}$ dimension) with maximized minimum
angles in the $n^{th}$ dimension is the Delaunay Triangulation Technique. However, the Delaunay Triangulation Technique (DTT) does not work when trying to generate a mesh of $n$-simplexes in the $(n+1)^{th}$ dimension. Rather than abandon the effective DTT, an algorithm was developed that meshes surfaces with relatively low degrees of curvature in the 3rd dimension using 2-simplexes, i.e., the usual two dimensional planar triangles. It is conjectured that by adding small local refinement operations, the main algorithm can generate a mesh that will contain triangles that are almost all nearly regular.

An Understanding of Why Christ Became Human
Alyssa Perez

My paper offers a close reading of one of the most important medieval theological texts. It addresses a question that has preoccupied Christians for centuries, and which continues to provoke theological discussion. A central Christian tenant of faith is that Christ became incarnate for the salvation of the world. What has remained an open theological question is “Why did God become human for our salvation?” The understanding of many of today’s Christians has roots in the thought of twelfth-century theologian, Peter Abelard (1079-1142/43). Abelard’s ideas were revolutionary during his time; he rejected the theories of salvation associated with Gregory the Great, which had captured the western European imagination for roughly six hundred years. He rejected, in addition, the innovative theory of his contemporary Anselm of Canterbury (c. 1033-1109). While Gregory argued that the crucifixion was part of an elaborate cosmic war in which God overcame the claims of the devil, and Anselm argued that the crucifixion was payment due God for human sinfulness, to Abelard, Christ became human in order to demonstrate his love. Abelard dismisses Gregory’s theory as giving over power to the devil, and he dismisses Anselm’s as sadistic. As Abelard writes, “Greater love has no man than this, that he lay down his life for his friends” (John 15:13). The incarnation – and especially the crucifixion – is meant to “turn us on” to Christ’s love for us, and thus to awaken in us a reciprocal love for God.

Analyzing Bone Health in College Students
Liam Shorrock

Bone health is a public health concern, and its main outcome, osteoporosis, is a disease characterized by skeletal deterioration leading to risk of fracture. Recent studies have reported a decline in bone mineral density (BMD) among healthy, college-aged students. These trends are unexpected and warrant further investigation. The purpose of this research was to examine differences in demographic and lifestyle characteristics amongst young men and women who exhibit increases, decreases, or little change in longitudinal BMD assessments. Dietary intake and regular physical activity was assessed using validated questionnaires. BMD was measured using dual-energy x-ray absorptiometry. Participants (n=162) were grouped according to changes in BMD; >1% increase, 0.9 to -0.9% change, and >1% decrease. Results at the spine and hip showed that change in lean mass was significantly different between the group that increased (0.22±1.4 kg spine, 0.28±1.4 kg hip) than those with little change (-0.38±1.5 kg spine, -0.18±1.5 kg hip) and the group that lost BMD (-0.42±2.1 kg spine, -0.85±2.0 kg hip). For BMD of the whole body, those that increased >1% performed significantly more physical activity (91.0±92.5 met-hrs/wk) than the group with little change (60.5±44.4 met-hrs/wk) or a decrease in BMD (59.3±49.2 met-hrs/wk). Calcium intake, caffeine consumption, body fat and weight did not differ between groups. This data shows that loss in muscle mass may negatively impact BMD at the hip and spine. For the whole body, physical activity seems important for helping to increase BMD. This prompts further research about relationships between demographics, lifestyle, and bone health.
Analyzing Phototactic Behavior in the Drosophila melanogaster model for Alzheimer’s Disease

Shelby Chun Fat

Two strains, Aβ42 (containing an aggregating peptide) and C99 (containing a non-aggregating control peptide), are under investigation in our laboratory as a model for Alzheimer’s Disease in Drosophila melanogaster. In mammals, Alzheimer’s is correlated with the appearance of aggregating Aβ42 polypeptide in the brain. In standard protocols, flies are trained to avoid light using quinine as an adverse stimulus and later tested to see if they have learned the avoidance behavior. It has been previously demonstrated that control flies show a higher level of memory than do Aβ42 flies. In an apparatus of our own design, none of the flies tested exhibited phototactic behavior. Of 80 flies initially tested, only 4 (3 controls and 1 experimental) entered the lighted chamber even after an extended testing period. If we are successful in selecting phototactic behavior, these strains will be used to model learning in the Alzheimer’s model. Once we have established a repeatable difference in learning between Aβ42 and C99, we will use the system to test the effects of a peptide that has been reported to interfere with aggregation in vitro. We anticipate that flies fed the interfering peptide will demonstrate increased learning compared to the untreated Aβ42s. We report on a series of experiments designed to potentiate the phototactic response by selection. To date, we are selecting positively phototactic flies to establish the next generation in hopes of increasing the strength of phototactic response in these strains.

Are All Students the Same? Beliefs and Attitudes about Transfer Students?

Katelyn Wirtz

As college costs rise, transferring from a community college to a four-year university is becoming a more popular option leading to an increase in the number of transfer students at four-year institutions. To date, little research has examined the experiences of transfer students, and the research that exists is almost exclusively from the perspective of the transfer student. Missing is an understanding of how transfer students are perceived at four-year universities and how these perceptions may affect students’ experiences. The purpose of this study is to experimentally investigate the beliefs and attitudes held by faculty and students about transfer students. Specifically, participants (200-300 faculty and students) will be randomly assigned to read about a student who is a transfer student or not and will rate the student on a variety of dimensions including perceptions of intelligence, academic ability, and achievement motivation, as well as their desire to interact with the student. In order to disentangle effects caused by transferring from effects caused by differences in status of an institution, two types of transfer students are presented: one from a community college or one from another four-year institution. Data are currently being collected and the results are therefore forthcoming. Given anecdotal evidence suggesting that transfer students are devalued, we expect perceptions of transfer students will be significantly worse than for non-transfer students and that this effect will driven by particularly poor perceptions of the community college transfer student. This research has implications for how universities integrate transfer students into their campuses.

Asian American Angelenos voting trends and how household income impacts outcomes compared to other ethnic groups

Melanie Mendoza

The city of Los Angeles is known to be politically liberal compared to other California cities. Despite this perceived homogeneity, there are variations in voting trends that appear between household income strata and exposes where the more conservative pockets of Angelenos exist. Los Angeles residents who earn a higher annual income are more likely to vote conservatively than those with a lower annual income (Pew Research Center, 2007). This finding, however, does not account for differences between
Asian Americans appear to be an outlier insofar as income level may not indicate voting preferences in the same way that it does for other ethnic groups. Asian Americans are frequently overlooked as a voting demographic and underrepresented in elected office, which means an accurate read of Asian American voting preferences may be deficient. Assumed to be increasingly Democratic, we examine how Asian American Angelenos really are voting and how household income impacts these outcomes compared to other ethnic groups (Nguyen, 2012). Using the 2008 and 2012 exit poll data collected by the Center for the Study of Los Angeles, we compare the voting preferences of Asian Americans in the city of Los Angeles with the voting preferences of African Americans, whites, and Latinos in terms of household income. We find that amongst Asian voters, there is no voting trend relative to their income. We see that they are the exception to the perceived voting trends that appear in other ethnic groups.

Assessing Multiple-Paternity in Broods of the Green Lynx Spider Peucetia viridians
Marisol Castellanos, Gabriela Lopez, Cecilia Rangel-Garcia, Maria Shibatsji

In the spider Peucetia viridans, the openings of a mated female's epigynum are often sealed by plugs, sometimes with a portion of the paracymbium of a male palpus inserted in each genital opening and embedded in the plugs. The presence of plugs and paracymbia may prevent further mating by the female. However, not all mated females exhibit these structures, possibly allowing P. viridans females to mate with more than one male. In a prior study, Ramirez et al. (2009) investigated this possibility by surveying multiple paternity in P. viridans. Their study determined the aspartate aminotransferase (AAT) genotype for each set of mothers and spiderlings. These genotypes were then used to genetically assess if the progeny data best fit with a single male as the father. With 17 broods, the mothers and spiderlings were all of the same genotype, making it impossible to test for multiple paternity. Among the other 12 broods, two (16%) exhibited clear evidence of multiple paternity, verifying that multiple mating by females is possible. As a follow-up study, we are trying to better estimate the potential for multiple paternity in P. viridans, using a more variable locus. Between October 2012-January 2013, we collected 32 females and their egg sacs from Hahn State Recreation Area. This semester, we are genotyping each spider for variation at the lactate dehydrogenase (LDH) locus, whose two alleles have approximately equal frequencies in P. viridans, making it likely that a greater percentage of the broods examined will be suitable for paternity assessment.

Assessing Multiple-Paternity in Broods of the Trapdoor Spider Bothriocyrtum californicum (Araneae, Ctenizidae)
Lexii Alcaraz, Soaad Alfaqaan, Therese Blanch, Mindi Catala, Kiara Cerda, Jennifer Gonzalez, Sarah Rosales, Jazmin Sevilla, Ally Zein

In a recent genetic study (Ramirez et al. 2013), we found no evidence for inbreeding in B. californicum populations, despite the potential for adult males to mate with siblings and other relatives in their natal area. Since multiple mating by females is one way to avoid the costs of inbreeding, we are now looking for evidence of multiple paternity in B. californicum broods. During the fall reproductive seasons in 2009, 2010 and 2012, we gathered 13 mothers and their broods from three sites (Canyon Country, Claremont, Kenneth Hahn SRA). We also genotyped one Canyon Country mother and her brood for variation at the malate dehydrogenase (MDH) and phosphoglucose isomerase (PGI) loci and found no evidence of multiple paternity. This spring, we are searching for additional sets of mothers and broods from Kenneth Hahn SRA, while also starting to genotype the balance of the 13 sets of mothers and spiderlings for two loci (lactate dehydrogenase, phosphoglucose isomerase) that are variable at this site.
Assessing the Phytoremediation Potential of Dune Lupine (*Lupinus chamissonis*)
Stephen Louie

Zinc and cadmium are metals used in the industrial process and are considered to be toxic and dangerous environmental pollutants. While there is not only a need to reduce pollutants into the environment, it is also important to find methods that address the pollutants that are already present in the environment. Phytoremediation is a treatment that involves the use of plants to extract or break down environmental contaminants. Plants known as hyperaccumulators are capable of surviving hostile environments that are otherwise uninhabitable to other plants. This research focuses on Dune Lupine (*Lupinus chamissonis*), found in the Ballona wetlands and the El Segundo sand dunes, and determining its potential use for phytoremediation. Specifically, the effect of the heavy metal zinc on this plant was investigated. Hydroponic systems were used to observe at how the heavy metal zinc impacts plant growth. This was judged by looking at variables such as plant size and dry weight after various treatments. Results showed that dune lupine grows better with 100 μM zinc sulfate, which is considered toxic to some plant species. At 500 μM zinc, plants were still viable but reduced in size. This indicates that dune lupine is able to withstand high concentrations of zinc, suggesting it may make a good candidate for use in phytoremediation. The next area of research will involve looking at whether dune lupine is accumulating zinc in its tissues, test other heavy metals such as cadmium, and investigate how the dune lupine microbial community may impact the tolerance of this plant to heavy metal stress.

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Baba: A Journey Remembered
Emma Wakely

Baba A Journey Remembered is based on my grandmother’s personal history who had emigrated from Ukraine first to Austria, then France, and finally the US, during the 1940s - a history which reflects on a journey of a people we know nowadays very little about. I knew, my grandmother’s story was a story to be told, so when studying abroad with the Germany film program, I chose Baba as my documentary topic. To gather more information I conducted interviews, gathering as much insight as possible. My research took me to Ukraine, to the very home my grandmother was born in, where I met family I did not know existed. The journey proceeded into Austria, visiting the cities my grandmother fled and the concentration camps she was held in. The research then took me to Northern France; further investigating sites and cities of her journey of survival. The only evidence I had along these excursions were her words, old documents and photographs. Despite that, I discovered an incredible family history, revealing the story of Ukrainians, who had fled Russia during World War II and were persecuted in its aftermath by the Soviet government. If only one thing had gone wrong neither I nor many of my loved ones would be here. I hope to illustrate with my film a rarely heard history as well as an understanding of how one moment can change everything.

Beet the System! A Follow-Up Case Study on Youth Organizing: Childhood Obesity and Food Injustice in Urban Communities
Lauren Frazier, Jennifer Martinez, Robyn Rutherford

With funding from the Robert Wood Johnson Foundation, the Funders’ Collaborative on Youth Organizing (FCYO) launched ReGenerations: Healthy Communities (HC), a national initiative to support youth organizing groups to address the root causes of childhood obesity by improving access to healthy, affordable, and culturally relevant food in schools and communities. Twelve grassroots community organizations were awarded an 18-month grant to develop and implement youth-led organizing
campaigns to create systemic change and win policy victories that address childhood obesity. The organizations are required to participate in regular evaluation activities (e.g., needs assessments, surveys, quarterly check-in interviews). Two grantees, reflecting diverse geographic areas (southwest, east), demographic constituencies (African American, Latino, mixed), food justice lens’ (school district, city-wide, and neighborhood) and experience in youth organizing and food justice (newer to seasoned), were randomly selected for site visits by LMU’s Psychology Applied Research Center (PARC) team. The grantees selected included Sociedad Latina located in Boston, Massachusetts and Southwest Worker’s Union located in San Antonio, Texas. Supported by BCLA’s Engaged Learning Initiative, a graduate-level research assistant was paired with an undergraduate student research assistant to conduct a 1-day site visit consisting of focus groups with youth leaders, surveys, and community tours. In this comparative study of community organizing strategies, quarterly interview and site visit data were analyzed across an 18-month period to determine differences associated with variances in the targets of change. Our results indicate that grantees have implemented a full complement of organizing strategies and tactics to accomplish their unique food justice policy campaign goals such as outreach and recruitment, ally base building, leadership development and political education. Notable benchmarks include Sociedad Latina increasing fresh fruits and vegetables in Boston Public School meals and Southwest Worker’s Union increasing organic and healthy food offerings at local grocery stores. These findings have implications for understanding approaches to community organizing in the service of public policy change among youth activists.

**Behind the American Lens: U.S. Middle East Policy**
Sheila Koohpai

Since the establishment of Israel in 1967, the United States has shown complete and limitless support for Israel and thus, the relationship has exponentially shifted U.S. Middle East policy. The latest Pew Research Poll conducted in October 2012, found the plurality of Americans support the administration’s relationship with Israel as well as sympathizing more with Israel rather than the Palestinians (by 48% to 11%) – but the results do not specifically show for different demographic groups.¹ Thus, there is a need for exhaustive examination of the root motivating factors that lead American-Israeli support in shaping the public opinion on foreign policy issues. To fill this gap, I examine the different levels of analysis introduced by Baum and Potter (2008)² and Stuart. N Soroka (2003)³ - institutional factors such as elite leader’s cues and the inter-relationship with mass media, the key elements of the Israel Lobby (AIPAC), issue salience, as well as possible pre-existing values and beliefs. The research comprises of a mixed-methods approach of mainly three parts. This includes an analysis of existing scholarly research relevant to the topic, a breakdown of the various forms of democratic political theory and the nature it applies to American attitudes on U.S. Foreign Policy, and a survey. The survey samples 650 college students in Southern California, with the aim of reaching 200 students of Middle-Eastern background. By understanding the motivating factors behind foreign policy opinion, this research discovers why American collective opinion supports Israel and furthermore, the effects American opinion has on the administration’s approach with foreign policy.

Being: An Exploration of the Human Experience
Masami Chin

Through my project, Being, I aim to explore the human experience and challenge our notions of otherness through ordinary experiences, thoughts, beliefs, stories, and philosophies of strangers. I will visually present these diverse voices through the medium of design. I plan to collect accounts of individual experiences through passing out anonymous surveys. These surveys include a list of 45 prompts, including questions such as: "What is the most important lesson you’ve learned in your life?" and "How do you deal with anger?" After the surveys have been returned, I will design an individual booklet and poster for each response. The design will correspond to my interpretation of the overall character of the respondent. Finally, I will distribute the complete booklets and posters as a series. As a result, I hope that people may discover meaningful connections with total strangers and build a greater sense of empathy. I want people to realize that these stories could very well belong to strangers standing next to them, or the co-workers that they see every day but do not know much about. Ultimately we are all human and we have a lot more in common than we think. I believe that by sharing these accounts of the human experience, I can help people become more aware of the connections we all inherently hold as humans. Hopefully then this understanding will help people find the motivation to treat all others with kindness and respect.

Benefits and Risks of the College Experience: multiple roles and identities in double majors
Katie Rose Sanfiippo, Nicole Snipper

For many college students, a central decision is whether to double major or not. To date, little data exist on the benefits or repercussions of possessing one versus two majors, and the data that do exist focus exclusively on one’s marketability following graduation based on whether one has multiple majors or not. The current study builds on this sparse literature, examining the psychological effects of majoring in multiple disciplines. Previous research concerning the possession of multiple roles (e.g., mother and worker) suggests a mix of consequences. Role strain perspective suggests that having multiple roles has negative consequences as individuals find it difficult to meet all role demands (Goode, 1960). Role accumulation perspective, in contrast, argues that there are benefits from inhabiting multiple roles such as access to more social support (Jackson, 1997). To examine the potential psychological costs and benefits of having one versus two (or more) majors, students at LMU and elsewhere completed measures of psychological well-being, stress, social support, and physical health, in addition to answering questions about their academic experience and chosen major or majors. Data are currently being collected; therefore results are forthcoming. We hypothesize that, in comparison to those with a single major, those with multiple majors will report higher levels of social support but will simultaneously report lower levels of well-being and higher levels of stress. The findings from this study have implications for how students are advised as they decide whether or not to take on a second major in college.

Breaking Bread Together: Accompaniment-based, experiential learning as an effective model for professional internship
Katelyn Jones

Experiential learning is a form of education which has existed since the time of Aristotle and is defined as a way of learning by process—i.e. learning through a pattern of direct experience and subsequent reflection. As a William Fitzgerald Grant recipient I was able to work for Programa Velasco, a United States NGO (non-government sponsored organization) which is facilitated by Salvadoran NGO ANADES (Asociación Nuevo Amanecer de El Salvador) as the first participant in their summer internship program. This model of internship combines elements of service-learning, study-abroad immersion and a professional work environment to produce a unique opportunity for participants to gain work experience while living with a host family in the marginalized community in which he or she is working.
As a teachers’ aid and administrative assistant at Centro Hogar preschool, in the socioeconomically depressed community of San Ramon, I completed my research both by working with children in the classroom and by observing the inner workings of a co-sponsored international NGO in the office. By living with a teacher from Centro Hogar and her family in San Ramon, I was able to experience the challenging reality many of my students and their families live daily. This fifteen minute paper-based presentation will explore why this model of experience and accompaniment-centered internship is impactful for both the intern and the poor community with whom he or she works by examining reflections from my own engaged research and case studies of 2 of my students during my time spent working and living with the people of San Ramon.

**Breaking Conventions: A New Market for the Male Condom**
Meghan Toomayan

The Center for Disease Control reported that almost half of pregnancies in 2006 were unplanned¹, and that there were nearly 20 million STI contractions in 2008². Despite the heightened risk of unplanned pregnancy and contraction of sexually transmitted infections, unprotected sex is still prevalent in today’s society. The CDC reported through their National Survey of Family Growth that only 21.3% of unmarried women ages 15 to 44 used a condom every time when having sex over the past month³. To help combat this issue, I propose creating an advertising campaign that encourages single women to purchase a blatantly masculine product, the male condom. Modeling the strategies of Edward Bernays, the “Father of Public Relations”, I will explore how advertisers market products to men versus women and manipulate social conventions through their influence over the public. I will create a print campaign and package design to expand the target audience of male condoms to include single women and promote personal responsibility for one’s sexual protection.

¹ Center For Disease Control: Unintended Pregnancy Prevention
http://www.cdc.gov/reproductivehealth/unintendedpregnancy/

² Center For Disease Control: Incidence, Prevalence, and Cost of Sexually Transmitted Infections in the United States

³ Center For Disease Control: Key Statistics from the National Survey of Family Growth
http://www.cdc.gov/nchs/nsfg/abc_list_c.htm#consistencycondom

**British Abolitionist Literature, 1780-1830**
Allison Crowley, Gillian Murphy, Kristen Trudo

Aided in part by the growing availability of searchable databases like Eighteenth-Century Collections Online (ECCO), scholars of the long-eighteenth century are getting a much better sense of the variety and heterogeneity of British abolitionist literature. This panel will reveal the diverse positions adopted by and strategies employed by writers promoting the abolition of the British slave trade. Allison Croley’s paper will focus on evangelical Christian abolitionist literature, exploring they way evangelical writers, such as John Newton and Hannah Moore, treat the abolitionist cause not simply as an end in itself but as a vehicle for salvation. Kristen Trudo explores the writings of abolitionist poets who draw on the resources of sensibility and epistolary writing to depict slaves as having genuine agency. William Cowper and Thomas Day expand and revise standard notions of agency by 1) depicting their slaves as having agency of mind and feeling and 2) depicting their slaves as possessing the ability to meditate on notions of agency. Finally, Gillian Murphy argues that the ways in which Romantics, particularly Robert Southey,
describe and depict slavery is largely in reaction to its portrayal within sentimental literature—a mode favored by many abolitionists. In sum, this panel challenges the standard conception of abolitionist literature as one-dimensional and programmatic and offers a sense of the complex and often antagonistic strains within this body of literature.

**Campus Involvement and the Development of Social Awareness in LMU Students**
-Lauren Cullen, Pamela Gonzalez, Alyana Roxas

What is the proper role of a Catholic university in forming ethical leaders for society? Is it simply to train competent students for successful careers or should there be an “added value” to a Catholic education in providing a supportive platform in order to inspire students to develop into agents of social change? These questions have prompted us to look deeper into the mission of a higher education. We believe that fostering learning outside of the classroom is critical in promoting a more holistic growth. Specifically, we were interested in better understanding those aspects of campus involvement that more strongly influence this growth. Furthermore, if such aspects exist, can the university tailor its campus offerings to more intentionally promote them? The Youth Cultures study was conducted to assess the values, aspirations, and experiences of first and fourth year students attending Loyola Marymount University. In this presentation we will examine the relationship between students’ involvement in social-service/religious organizations and their degree of social awareness and orientation. We hypothesize that those students who are more involved in social-service/religious groups will tend to show a greater and more ethical sense of social awareness and orientation. These differences will tend to increase from first year to fourth year, which preliminary analyses support. The strengths and limitations of the cross-sectional design of the survey will be discussed. The findings are interpreted as supporting the important role that a Catholic education plays in the formation of “whole students” inspired to contribute to the improvement of social inequality.

**Chains and Whips Excite Me: The Carnivalesque as a Mode of Performative Reclamation**
-Hayley Thayer

Third Wave Feminism has perpetuated a discourse surrounding embodied sexual rhetoric that presents a complex paradox in scholastic inquiry. This project interrogates that paradox which demands that all hyper-sexual embodied performance be either empowering or problematic, without understanding the possibility for simultaneity within such performances. This article provides an analysis grounded in critical rhetoric to focus on the spectacle of singer Rihanna’s music video “S&M” and her image in the public sphere. This video serves as a representative anecdote for the ways that carnivalesque expressions of sexuality and sadomasochistic nuances allow traumatized bodies to temporarily exist within a liminal space, which can function to empower the reclamation of the traumatized body and create agency for the individual. Additionally, this article analyzes the ways the media has performed a vivisection of Rihanna’s “exotic” brown body, by investigating the similarities between the story of the Hottentot Venus in 19th century Europe, and Rihanna’s own image in the public sphere.

**Characterization and Fabrication of a Bio-degradable Magnesium-Nanodiamond Composite**
-Edward Gillman

Devices for use within the human body must be able to withstand corrosion in a biological environment and endure use for extended periods of time. Magnesium (Mg) has been heavily investigated as a biodegradable implant material due to its suitable strength, similar elastic modulus to bone, and biocompatibility. The goal of this research project is to investigate and fabricate a nanocomposite with a magnesium matrix and corrosion resistant diamond nano-particles as reinforcement. A magnesium
nanocomposite with 1 wt% nanodiamond particles was produced using a blend-press-sintering powder metallurgy method. To improve density, sintering was performed using a hot press applying 180 MPa pressure. Fracture morphology and in vitro corrosion measurements were performed for characterization of the initial magnesium and the novel composite. Results showed that the addition of nanodiamond particles reduced the corrosion rate by over 50% and pressure sintering produced a dense microstructure. Additionally, the pH increase of the simulated body fluid was slightly reduced over a 3-day immersion period. This material has the long-term biodegradable properties necessary for the next generation of ACL reconstructive screws, vascular stents, and other exciting applications.

Characterization of Burkholderia unamae motility mutants
Michael S. Onofre

Burkholderia unamae is a nitrogen-fixing species of bacteria found in endophytic relationships with crops like maize, sugarcane, and tomato, and has been shown to promote plant growth. We are studying the ability of B. unamae to interact with the roots of these plants, as well as the genes responsible for this association. Based on previous research, we hypothesize that motility in B. unamae will play a critical role in the bacterium’s ability to interact with plants. We therefore screened for B. unamae mutants defective in motility. We introduced a transposon into B. unamae by using a biparental mating strategy between a rifampicin resistant B. unamae strain and Escherichia coli carrying a vector that carries a transposon containing a kanamycin resistance gene. We selected for transposon-tagged mutants by selecting for colonies resistant to rifampicin and kanamycin. We then screened the mutants for defects in motility on 0.3% TY agar. Two of the mutants were chosen for further characterization. MO384 was confirmed to be non-motile and have an alteration in cell morphology. In addition, this mutant produces excess exopolysaccharide. Molecular methods identified the mutation to be in the gene that encodes FlhC, a transcriptional activator that has been identified in other bacteria as involved in flagellar gene regulation. We also identified a fliC mutant, which is non-motile due to the absence of the major flagellar subunit. We have complemented both mutants and are looking at biofilm production, root elongation, and exopolysaccharide production. This process will help provide insight into the role that motility and the FlhC transcriptional regulator have in the association this bacterium has with plants.

Characterization of Mycobacteriophage Soto and Cmilk
Katie Fusco, Jesse Haro

Mycobacteriophages are the most abundant biological entities on Earth. It is important to understand the implications they have on bacterial evolution and the potential for medical treatment. The research conducted was to expand the knowledge of mycobacteriophages in order to attain a greater understanding of their function. A soil sample was collected for mycobacteriophage enrichment, isolation, and purification; phages Soto and Cmilk were purified. The purification process consisted of several rounds of plaque streaking and filtration of the mycobacteriophages. Electron microscopy was performed to examine the morphology of the isolated mycobacteriophages and we determined the morphotype of both phages to be in the *Siphoviridae* family. The genomic DNA was analyzed by restriction endonucleases and PCR with cluster-specific primers followed by gel electrophoresis. Mycobacteriophage are classified into clusters based upon their genomic DNA sequence. We were unable to assign clusters to phages Soto and Cmilk due to the inconclusive results from the cluster-specific primers used in PCR. Phage Soto was selected for genome sequencing. Using bioinformatics tools, Soto’s genomic sequence was annotated to identify genes and gene functions. This research has added to the growing pool of data on mycobacteriophage characterization and genome analysis, expanding the information about these diverse biological entities.

Chinese Students’ Attitudes Towards Counseling and Psychological Services
Philippa Adams
The notion of “face” in Chinese culture has a significant influence over various aspects of social and private lives of Chinese people (Hwang, 1987), including their attitudes towards psychological services. While Chinese counseling practices are influenced by Western methods, Western theories and practices are not always culturally appropriate for Chinese individuals in need of psychological help. In a collectivist society where maintaining harmony is imperative, “complaining” about one’s hardships to a stranger could result in loss of “face”. There is also a social stigma attached to mental health in Chinese society. This qualitative study examined how Chinese students perceive counseling and psychological services. A sample of ten Chinese students completed a bilingual, open-ended, anonymous survey. Furthermore, the study included an interview with a counselor who was experienced with cross-cultural therapy. Participants expressed mixed feelings about confiding in a stranger. Some stated that they would rather to talk to family or friends, while others preferred to keep problems to themselves, for fear of appearing “superficial.” It was also found that while participants deemed mental health services as necessary, they should only be used as a last resort. The counselor confirmed this view, saying that if Chinese students came earlier, it would be easier to assist them as opposed to later, when the problems were more severe. By understanding the cultural considerations when counseling Chinese students, further research can propose ways to improve the effectiveness of therapy for Chinese students.

Circular Dichroism for Monitoring the Conformational Changes of Amyloidogenic Islet Amyloid Polypeptide
Bianca Malaspina, Travis Whyte

Islet Amyloid Polypeptide (IAPP) is an amyloidogenic protein secreted in the β cells of the pancreas. Similar to other amyloid proteins, IAPP has the ability to misfold, and form amyloid plaques in the β cells, causing cell death and the symptoms associated with Type II Diabetes. It is believed that inhibition of plaque formation can delay, or even prevent, the onset of Type II Diabetes. IAPP has a natural β-sheet conformation when forming the toxic species. Circular Dichroism (CD) is a powerful technique used in the determination of secondary structure of proteins, and can be used to determine a change in the secondary structure of IAPP when tested against potential inhibitors. Extracts of seven common fruits were prepared as inhibitors, and analyzed for their ability to prevent the change of IAPP from its native form to its toxic configuration.

Climate Change and Mississippi River Hydrology: Modeling Future Implications for the Basin and its Inhabitants
Geanna Flavetta

The Fourth Assessment Report of the Intergovernmental Panel on Climate Change determines that the effects of climate change and its subsequent effects on the hydrologic cycle are indisputable. To investigate how the Mississippi River Basin will respond to these global future conditions, output from a high-resolution hydrologic model driven by a regional climate model under various greenhouse emissions scenarios. The analyzed variables, soil moisture, runoff, precipitation and evaporation, pertain to the basin’s hydrologic cycle. Results from the different climate change scenarios indicate substantial changes to the hydrologic cycle of the Mississippi Basin. These impacts could present potential changes to future agricultural yields and the size of the Dead Zone within the Gulf of Mexico. Furthermore, the precipitation and runoff values may give some indication to the relative water levels of the river and its effect on infrastructure and properties along the river’s outlet.
Climate Projections for Los Angeles and Southern California: Mitigation versus Adaptation
Peter Guan Li

With our atmosphere changing due to anthropogenic emissions of greenhouse gases, we investigate how different atmospheric concentrations may alter the climate of Los Angeles and Southern California. A high resolution regional climate model is applied over the Southern California to project future climate conditions under a business as usual scenario and a low emissions scenario. Several key parameters including precipitation, humidity and temperature are examined. Focusing on a small region like Los Angeles allows for more thorough analysis of the scenarios produced by the regional climate model and allows for a better understanding of the impacts of climate change in the region. An assessment of the impacts mitigation versus current environmental regulations and policies by the California and Washington on future climate is also made to provide insight on how our current lifestyles and political choices affect the climate of the Los Angeles basin and Southern California area in the century.

Community Development, Urban Revitalization, and Demographic Changes Surrounding Ports of LA and Long Beach
Natalie Hernandez

As of 2012, the Ports of Long Beach (POLB) and Los Angeles (POLA) are considered the busiest port complex in the United States, handling cargo valued at $428 billion and supporting 1.2 million jobs in the region each year (polb.com and portoflosangeles.org). However, although POLB and POLA are a local economic engine, the expansion of these ports in the past decade (2000 – 2012) has directly impacted the environment and port-adjacent neighborhoods. In an effort to minimize the effects of their development and operations, POLA adopted an “Environmental Management Policy” in 2003 and POLB adopted a similar “Green Port Policy” in 2005 to address and provide mitigations to improve surrounding community. For many years scholars have studied efforts such as these in relation to community development and urban revitalization, and thus measured their effectiveness through changes in demographics over a time period (Cloud & Roll 2010, Perkins, Larsen & Brown 2009). Using Geographic Information Systems (GIS) and Census Data between 2000 and 2012, I mapped out demographic changes for census tracts that surround the Ports of Los Angeles and Long Beach. I then determined if there is any correlation between the GIS findings and documentation from 2000 – 2012 community development and urban revitalization efforts. I expect that significant demographic changes in port-adjacent-census-tracts (PACTs) have occurred from the time period 2000– 2012. Moreover, I predict that there is a causal relationship between the community development and revitalization efforts, and the demographic changes.

Comparison of Fruit Extracts for Inhibiting the Aggregation of Amyloidogenic IAPP
Shauna Ekimura, Evangeline Green, Pei-Yu Kao, Dennis Juarez

It is thought that the aggregation of the 37-amino acid polypeptide Islet Amyloid Polypeptide (IAPP, amylin), in the form of either insoluble amyloid or as small oligomers, appears to be associated with playing a direct role in the death of pancreatic β-islet cells in type II diabetes. It is believed that inhibiting the aggregation of IAPP may slow, if not prevent entirely, the progression of Type II Diabetes. Extracts from 13 different common fruits were prepared, and each extract was analyzed for its ability to prevent the aggregation of amyloidogenic IAPP. This was determined through the performance of Thioflavin T binding assays. In addition, Circular Dichroism was also utilized in order to monitor and test the in vitro inhibitory potential of each extract. Atomic force microscopy was used to visualize the formation of amyloid fibers with fruit each fruit extract and without each fruit extract. Finally, extracts were analyzed for their ability to protect living mammalian cells from the toxic effects of IAPP in MTT Assays.
Complete Expression
Joanie Payne

My Senior Design Thesis will explore different learning styles within society by creating a multi-sensory experience for the observer through physical illustrations of my original music. In embodying the sound, I hope to fill the gaps of each expression individually, while appealing to both the visual and auditory learner. My research will consist of exploring the necessity of approaching both expression and education through different senses in order to create a truly complete outcome. Further, by merging the senses, an entirely new experience is produced. My thesis can be summed up by the expression "1+1=3".

Complicity and Resistance: an analysis of the antifascist film genre in the German Democratic Republic
Nolan Rivkin

This project is an analysis of the antifascist genre of cinema in the German Democratic Republic (known as the GDR or “East Germany”). I conducted first-hand research using primary sources and built upon already-existing secondary research in order to understand this unique genre of film. My primary sources consisted of the films themselves as well as original East German magazine articles accessed through the archive of the Wende Museum. I determined that the antifascist genre of film was a unique way for East Germans to come to terms with the crimes of the Nazi regime, which had preceded the GDR. The state-owned Deutsche Film-Aktiengesellschaft (German Film joint-stock company, or “DEFA” for short) held a monopoly on cinema in the GDR. As DEFA was a part of the ruling power apparatus in the GDR, this makes the films of DEFA an invaluable tool for exploring the messages and values that the ruling regime of the Socialist Unity Party (SED) tried to convey to its citizens. Through the antifascist films of DEFA, the SED perpetuated the founding myth of the GDR as an antifascist state. This antifascist ideology directly linked the Federal Republic of Germany (West Germany) to the Nazi regime. DEFA’s antifascist films portrayed the German working class as victims of the Nazis while simultaneously shifting the actual blame for Nazi crimes to German capitalists and industrialists – who, it was argued, had all escaped to the West. Through the selective interpretation of recent history, the SED was able to justify its political decisions and domestic policies.

Computing the Chromatic Polynomials of the Six Signed Petersen Graphs
Erika Meza

Graphs are a collection of vertices and edges that connect some vertices to others. Signed graphs are graphs whose edges are assigned positive or negative labels and may contain loops. Signed graphs have been useful in understanding phenomena that occur in our society, such as interactions within a group of individuals or the representation of biological networks which allow for further analysis of the relationships that exist in nature. Our work addresses open questions regarding proper colorings of signed graphs, in which the vertices are assigned colors based on rules according to the edge connections and edge labels. We explore the number of proper colorings of these graphs by computing their corresponding chromatic polynomials. In particular, we investigate the six distinct signed Petersen graphs studied by Thomas Zaslavsky (Discrete Math 312 (2012), no 9, 1558-1583) and prove his conjecture that they have distinct chromatic polynomials.

Conformal Gravity and the Alcubierre Warp Drive
Zily Burstein

The Alcubierre drive, proposed in 1994 by Miguel Alcubierre, suggests that it is possible for a spaceship to travel faster than the speed of light. This is achieved by expanding and contracting space-time behind and in front of the spaceship respectively, while the spaceship remains in a region of flat space-time.
within the warp bubble. However, Alcubierre’s theory, which is based on Einstein’s general theory of relativity, has a gap: such speeds can only be obtained with large quantities of exotic matter—matter with negative mass which (with our current knowledge) can only theoretically exist in small quantities. To improve upon this theory, we approach the warp drive idea under the framework of conformal gravity, an extension of Einstein’s relativity based on a supposed invariability of the universe’s space-time fabric. With a Mathematica program we designed to calculate tensor quantities in both general relativity and conformal gravity, we have observed that the latter does not require exotic matter for a specific choice of the shaping function which describes the form of the warp bubble. These results suggest that if conformal gravity is a correct extension of general relativity, faster-than-light interstellar travel via an Alcubierre metric might be a realistic possibility.

Continuous Time Markov Chain Models of Gene Regulatory Networks under the Environmental Stress of Cold Shock in Saccharomyces cerevisiae
Nicholas Rohacz

We present our recent efforts in building and analyzing a stochastic model of gene regulatory networks using continuous time Markov chains to model complex interactions of regulatory dynamics. Coupling the model with a stochastic approximation technique allowed for comparing the model to data. Our data comes from DNA microarrays measuring gene expression in Saccharomyces cerevisiae in response to cold shock. The wild type strain BY4741 and strains deleted for the Cin5, Gln3, Hmo1, and Zap1 were harvested at the t0 control temperature 30°C. Cells were subsequently harvested at 15, 30, and 60 minutes after being subjected to 13°C cold shock. Four to five replicates were performed for each strain and time point. Total RNA was purified from each sample, labeled and hybridized to DNA microarrays. Within-chip normalization was conducted using the limma package in the R Statistical computing environment and chip-to-chip normalization was conducted using an in-house developed median absolute deviation scaling. Changes in gene expression are controlled by a network of transcription factors which bind to regulatory DNA sequences. A gene regulatory network for the cold shock response was constructed from a set of transcription factors known to regulate each other, as documented in the YEASTRACT database. Our network consists of 21 nodes, each of which represents the gene, the mRNA, and the protein transcription factor it encodes. These nodes are connected by 50 directed edges which represent the regulatory relationships. Our fits show good agreement between the model and data.

Creative Expression of Post-Traumatic Stress from Veterans of World War II
Kimberly Wolfe

Famously dubbed “the greatest generation” by Tom Brokaw, veterans of World War II are often portrayed in ideal terms. In his article, “The Good War?”, historian Richard Polenberg claims that, “[o]nly in the last ten years [prior to 1992] has a body of literature appeared that altered the terms of the discussion and placed [World War II] in a different light” other than that of the “Good War.” My research suggests that Polenberg does not tell the whole story, that in fact a number of literary works and films in the aftermath of World War II portrayed the bitter realities of war and violence. Novels by Kurt Vonnegut and Joseph Heller are often associated with veterans and wartime experience; other authors such as Merle Miller wrote honest works concerning the difficulty veterans faced returning home from war, which have generally been neglected. Similar realities are evident in film as seen in The Best Years of Our Lives and The Men. Through the use of such veteran sources, it is clear that these creative works – short stories and novels, poetry and film - were produced by veterans some of whom expressed their troubles coping with the consequences of the war. These stories reveal the post-war struggle with what since the Vietnam War has been defined as PTSD. This condition was barely recognized as such and even denied by some as a legitimate medical condition. As a result many veterans of the World Wars were forced to deal with their issues without support from the medical
Yet the literature and films of these authors, veterans and non-veterans alike, provide insight into the wartime experience in the years immediately following the Second World War.

**Dayside Distributions of Pc5 Wave Power in the Quiet Magnetosphere**

Rhys Taus

This research is a statistical study of Pc5 activity in the quiet magnetosphere based on magnetic field data from the THEMIS mission. THEMIS is an array of five satellites which orbit the earth in the magnetosphere. We produce global dayside “maps” of compressional and transverse wave power in the Pc5 frequency band throughout the magnetosphere and consider the dependence of the power on solar wind bulk velocity \( V \), dynamic pressure \( P \), and fluctuations in the dynamic pressure \( P_{\text{var}} \). Pc5 is a frequency that is known to energize charged particles. We find a correlation between both compressional and transverse Pc5 power levels and each of the three solar wind properties. However, the increase in the power level due to the solar wind bulk velocity drops off rapidly as the inward distance from the magnetopause increases, while the elevated power levels due to dynamic pressure and fluctuations in the dynamic pressure remain relatively high. Our results provide further evidence of the importance of the Kelvin Helmholtz instability, which is associated with high-speed solar wind flow, as a mechanism for the production of Pc5 waves on the magnetopause and solar wind pressure and its variability as the controlling factor for Pc5 power observed in the inner magnetosphere.

**Deaf Education: Signs of Language and Culture**

Michelle Iafe

Classrooms are designed to provide a rich environment to nurture early childhood language acquisition. Perspectives on Deaf education have become polarized in the debate to identify such an ideal classroom. The language of instruction and teaching methods are contending issues in this debate as programs differ in their use of English and American Sign Language (ASL). ASL provides both a distinct language system and culture of the Deaf community. My research studies the effectiveness of a bilingual, bicultural classroom for Deaf students in which ASL is the language of instruction and interaction. It asks the question: What are the advantages of this approach in regards to a child’s social and academic learning and development? My research is grounded in my theory that language acquisition and literacy development in Deaf children is a bilingual process. It adds to the current research investigating the relationship between language development and future literacy success of Deaf students in different academic environments. To study such an environment, I joined the language lab of Dr. Marlon Kuntze at Gallaudet University, the leading liberal arts college of the Deaf in DC, to study a kindergarten ASL/English bilingual, bicultural classroom. We are investigating the role of turn-taking in conversations and its possible relationship to future literacy success for Deaf children. This study is supplemented with an understanding of the sociocultural experience and history of the Deaf community. Immersion within the language and culture of the Deaf community enhances this research experience.

**Detention to Detainment: The Relationship Between School Punitive Policies and Juvenile Incarceration Rates in Diverse School Districts**

Allison Goldberg

In the United States in 2009, one in 11 African-Americans were under correctional control, compared with one in 27 Latinos and one in 45 whites. Similar rates of racial inequity were present in the U.S.’s education system in 2003, as one in five African-American students were suspended, compared with fewer than one in ten white and Asian students. Research consistently shows a strong correlation
between schools’ punitive policies, drop-out rates, and later criminal activity. This relationship, commonly referred to as the school-to-prison pipeline, has significant consequences for the nation. The achievement gap between minority and white students continues to widen, creating unequal opportunities for success, and there are currently more African-American men under correctional control than there were enslaved prior to the Civil War. Furthermore, this issue has substantial fiscal implications, as the U.S. spent $47 billion in 2008 on criminal correction, outpacing budget growth in education, transportation, and public assistance. Therefore, I will examine the relationship between school punitive policies and juvenile incarceration rates in culturally and socioeconomically diverse school districts. Maryland will serve as a case study because it has ideal data for this research. I will analyze the rates of disciplinary action and juvenile incarceration in each district, and the demographics of youth affected by these punitive measures. Additionally, I will issue surveys to educators in Howard County, a socioeconomically and culturally diverse school district; Baltimore City, a relatively homogeneous majority African-American and low-income school district; and Carroll County, a relatively homogeneous majority White and wealthy school district.

Determining the factors to successful renewable energy policy in developing countries; a cross-national comparative analysis
Michael George

As of 2012, the majority of people living in developing countries are without access to reliable sources of energy. Though industrialized countries have relied on fossil fuels to achieve consistent economic growth for over a century, it is imperative that developing countries avoid that path in order to benefit the long term health and wellbeing of their people. This paper examines variation in renewable energy adoption across developing countries, and isolates underlying causes which may lead a country to experience greater rates of renewable energy than another. Using a multivariate regression analysis, this project provides a comprehensive answer to the question, "what explains variation in renewable energy adoption in developing countries?" By analyzing extensive data from the World Bank and the International Development Association, this project considers key political variables which are thought to influence the potential success of renewable energy adoption. Including such variables as social acceptance, urban population, political freedom, and official development assistance, this project provides insight into how countries all over the world can formulate energy policy of lasting and positive impact.

Developing a Quality Rating Standard for Parent Involvement in Early Education: An Analysis of Parent Involvement in California Preschools
Katherine McGrath

An extensive body of multi-disciplinary research has indicated the importance of parent involvement during a child’s critical growth from ages 0-5. Not only do parents ensure that a child’s basic needs are met; they also lay the foundation for language acquisition and social intelligence. Preschool is designed to facilitate child development and prepare children for Kindergarten. In the last few decades, research has confirmed the advantages of preschool and 39 states now fund preschool programs. Preschools encourage parent involvement in a variety of different ways. Unfortunately, California’s preschool licensing requirements are limited with respect to parent involvement. While national and statewide assessments have evaluated preschool programs in the U.S., specific measures of parent involvement are absent from the majority of these studies and Quality Rating Systems. Through original survey research, this study seeks to determine how preschools in California currently address parent involvement. Qualtrics was utilized to distribute a 30-item survey to 267 directors of public and private preschool programs across California. The survey was administered for a month-long period and there was a 47.9% response rate. Participants were asked to answer questions about parent involvement policies, barriers, and solutions. The following topics were covered in the survey: language barriers, parent education, and communication with families. The results will be used to draw conclusions about
how preschools foster parent involvement and to create a new assessment measure of parent involvement through a Quality Rating System.

**Developing a Unified Model for Measuring Artificial Intelligence Research**

Jasmine Dahilig

Alan Turing's seminal work on artificial intelligence, "Computing Machinery and Intelligence," introduced the Imitation Game (now known as the Turing Test) as a method for measuring machine intelligence, asserting that if a machine acts as intelligently as a human, then it is as intelligent as a human being. However, modern AI researchers have observed certain limitations in the human-centric model and have turned away from the Turing Test in favor of other models for measuring machine intelligence. We now have a proliferation of theories of what constitutes intelligence and no longer have a standard by which to measure the degree to which new technologies can be considered intelligent. An approach to the solution to this problem can be modeled after the famous $P=\text{NP}$ poll conducted by William Gasarch in 2006, in which he surveyed 100 computer science theorists on their opinions of the unsolved $P$ versus $\text{NP}$ problem. Following Gasarch's methodology of "when, what, and how," this research involved securing initial positions from several Turing Award winners on the following questions: "when will machines become intelligent?" "under what criteria will machine intelligence be judged?" and "how will machine intelligence be achieved and which techniques will be employed?" By assembling opinions from well-known figures in the computer science community and analyzing the trends in responses, this research aims to provide AI researchers with a foundation by which they can create a unified model for measuring artificial intelligence.

**Discover, Isolation, and Characterization of Mycobacteriophages Dresco and Soto**

Andrew C. Abesamis, Francisco A. Cerda

Bacteriophages, viruses that infect bacteria, are the most abundant biological entities on the planet, estimated at 10^{31} phages total. Since bacteriophages are so abundant, their functions and characteristics vary and can serve many purposes, such as medical therapy against bacteria or for studying phage and bacteria communities. We are conducting a yearlong research process at Loyola Marymount University, funded by Howard Hughes Medical Institute (HHMI) Science Educational Alliance Program, to isolate a unique phage and annotate its particular genome. We reported the isolation of phage Dresco, a lysogenic phage isolated by enriching, isolating, and purifying the phage. Secondly, we purified the genomic phage DNA, studied it by restriction endonuclease analysis and classified Dresco into Cluster E through polymerase chain reaction, gel electrophoresis. Electron microscopy classified Dresco as member of the siphoviridae family by its isometric capsid and its tail morphology. Phage Soto, another phage isolated and characterized at LMU underwent genome sequencing. Currently, we are engaged in comparative genomic analysis through bioinformatics and annotation of Soto's genome. The bioinformatic tools being used such as BLAST, Phamerator, and DNAMaster can help us compare Soto's specific genes with those already sequenced and analyzed in the phage database. We expect to find specific functions and genes of Soto once the annotation is complete. Genome annotation and comparative genomic analysis of phage Soto will contribute to phage evolution as a whole.

**Discovery and Characterization of Novel Mycobacteriophages Nargle and KingLeonidas**

Nicole Anguiani, Lisa Brehove

With enumeration estimated at $10^{31}$, bacteriophages (viruses that infect bacteria) are the most abundant biological entities in nature. They have potential applications in medicine, and they demonstrate a unique evolutionary history tied to their bacterial host. To aid in the further study of bacteriophages, we isolated a Mycobacteriophage – a virus that infects bacteria in the genus...
Mycobacterium – and studied its morphology and DNA before having it sequenced and analyzing its genetic code. In fall of 2012, we separately isolated two Mycobacteriophages, Nargle and KingLeonidas, from soil samples by enriching the soil samples with Mycobacterium smegmatis. We purified the phages and isolated the genomic DNA. We examined the DNA via gel electrophoresis and restriction endonuclease digest, and by using Polymerase Chain Reaction with known cluster-specific primers to identify the phage clusters, or classification. KingLeonidas was found to be a member of Cluster A1, and Nargle was found to be a member of Cluster B1. We also examined phage morphology using electron microscopy and found both phages to be Siphoviridae. Currently, we are analyzing the DNA sequence of another Mycobacteriophage, Soto, that was isolated using the same methods and its genomic DNA was sequenced. We are annotating the Soto genome using bioinformatic programs such as BLAST, Phamerator, and DNAMaster to identify the genes and gene functions as well as classify Soto in a cluster and find related genomes using the central phage database.

**Discovery, Isolation, and Characterization of Mycobacteriophages, Chester, Rocky, and Soto**
Charlotte Cronenweth, Brianna Gaytan, Sarah Rock

The highly diverse viruses that infect bacteria, bacteriophages, are the most abundant biological entities on earth with an estimated $1 \times 10^{31}$ existing currently. For this reason along with the fact that phages have incredible potential as therapeutic agents against bacterial infection and are useful in the fields of bioinformatics and comparative genomics, we are researching bacteriophages. Specifically, *Mycobacterium Smegmatis*, the bacteria infected by phages in our lab is a close relative to the bacteria *Mycobacterium Tuberculosis*, further demonstrating potential medical benefits of phages. We obtained individual phages from soil samples and through a series of steps, enriched, isolated, and purified the phages Chester and Rocky. The subsequent purification of each phage led to the analysis of its DNA through endonuclease restriction. A DNA polymerase chain reaction allowed for the identification of phage Chester into cluster D and Rocky into subcluster A1 (clusters are phage classification). The physical features of each phage were then observed via electron microscopy and phages Chester and Rocky were determined to be of the Siphoviridae family. Another phage, Soto, was selected for genome sequencing. Though Soto was not able to be classified in a particular cluster using analysis with restriction endonucleases or PCR, it is now putatively cluster B by the phage database, Phages.org. Currently, we are utilizing bioinformatics programs such as BLAST, Phamerator, and DNA Master to annotate and compare genomes and discover the purpose and function of bacteriophage genes. After deciphering the genomic content, we will discuss the results of comparative genomic analysis to evaluate the role and importance of bacteriophages in mycobacterial ecology.

**Discovery, Isolation, and Classification of Mycobacteriophage CHAI**
Kathryn D. Esposito, Tessa A. Morris

Through the Howard Hughes Medical Institute Science Education Alliance (HHMI SEA) Phages Program, we studied mycobacteriophage, viruses that infect Mycobacterium Smegmatis. Research on phages, the most abundant biological entity on Earth, can reveal vital insight into genetic evolution. The phage we analyzed, CHAI, was discovered in the soil of the bluff overlooking Los Angeles at Loyola Marymount University. We enriched and then isolated CHAI from its host bacterium, Mycobacterium Smegmatis. After purifying the genomic DNA of CHAI, the next step was to classify CHAI into a certain cluster, a cluster being the phage equivalent of the classification of a species. Through the use of restriction endonucleases analysis, Polymerase Chain Reaction (PCR) techniques, and gel electrophoresis, we classified CHAI into the E Cluster. Through Electron Microscopy we determined that CHAI had Siphoviridae morphology. Using bioinformatics, this study is reporting on the complete annotation of the Soto genome, a phage isolated separately. Bioinformatics tools such as BLAST, Phamerator, and DNA Master are being used to annotate and compare Soto against other phage genomes. Here we present the process of discovering, isolating, and classifying CHAI as well as present our findings from the bioinformatics analysis of Soto and its effect on microbial ecology and evolution.
Do Mussels Adjust Orientation to Minimize Thermal Stress?
Michael Carlone, Rachael Sears

The sun is the main source of heat in the intertidal environment. Using the mussel Mytilus galloprovincialis, we have previously shown in the lab that varying orientations of mussels relative to the angle of the sun have profound effects on rates of heating. Our previous experiments have also shown a significant but weak correlation between exposed surface area and body temperature. The reason for this weak correlation is likely the asymmetrical nature of the mussel shell. Preliminary field data have suggested that mussels tend to avoid thermally stressful orientations in the field. To expand upon these data, we have chosen to re-examine the previous lab experiments using a simulated solar source and a mussel mimic in order to corroborate the patterns in our previous study. In the field, we have chosen different sites along the Southern California coast that support intertidal mussel populations in order to apply our laboratory findings to live specimens. Due to the preliminary findings mentioned above, we now believe that mussels may alter their behavior in order to avoid an increasing body temperature caused by exposure to the sun. Field observations over extended periods are currently underway, in which we are analyzing body orientations over time. We are tracking body temperatures at each site with mussel mimics. We predict that mussels will adjust their body orientation because of recent experience with high temperatures.

Do Publicity and Stress Chase Women Out of the Political Race?
Stephanie Khoury

In the United States, and around the globe, there is a shortage of women at all levels of politics. One explanation for the gender gap in positions of power such as politics is that men generally tend to compete more and women less than they optimally should, making women less likely to enter the political race. This thesis builds on the current research in the field of gender differences, specifically regarding competitive nature, stress and coping styles, and political interest. We explore the role of stress and publicity for competition choices in the framework of a laboratory economics experiment conducted at LMU. Subjects complete a real effort task and choose between competitive and non-competitive payment schemes in several rounds. In the publicity treatment, subjects who make more competitive choices have to share more information about their performance than others; in the so-called stress treatment, participants that make more competitive choices are at higher risk of receiving no payoffs due to mistakes. In the publicity treatment, results from previous literature are replicated with a significant gender gap in competition choices; whereas in the stress treatment, unexpectedly, there is no significant gender gap. In the more stressful and difficult competitive environment of the stress treatment, only the truly confident seem to make competitive choices keeping low-performing men from making choices that are not optimal. We investigate the relevance of other factors such as self-reported stress-levels, beliefs about individual and relative performance, personality characteristics, risk attitudes, and design features of the experiment.

Dying for Twitter: Mexico’s Drug War and the Influence of the New Media
Mario Caballero

The insufficient American and Mexican commercial media coverage of Mexico’s ongoing drug violence has thus far framed the conflict in a manner that doesn’t reflect the realities of those Mexican citizens whose lives have been influenced and often destroyed by it. As the analysis in this paper demonstrates, this is due to two factors: 1) journalists who have been threatened by the drug cartels; 2) a misinformed
American media that continues to only perpetuate the myth of a “spillover” of violence into American territory. Numerous Mexican citizens, by contrast, have taken to social media outlets to tell their version of the story and to fight back against the cartels. While these new platforms offer a much more realistic picture of the cartels and the impact of drug violence, the lack of traditional journalistic coverage of the information citizen journalists have generated, as well as a lack of protections for those who maintain these platforms, has created a severe disconnect between the real stories of the drug violence and the politically motivated rhetorical frames found in traditional media coverage. By comparing the traditional and social media accounts of major events in the drug conflict, I identify serious gaps in the traditional coverage. I also suggest new media solutions that could be implemented by both the Mexican state and commercial media to better address the drug conflicts. Ultimately, I suggest support for grassroots social media that must be involved in President Enrique Peña Nieto’s new approach to the issue and that information from citizen-based social media must also be incorporated into traditional media accounts in order to stop the perpetuation of current negative media narratives.

**Dynamical Systems Modeling of the Cold Shock Response in Saccharomyces cerevisiae**

*Katrina Sherbina*

DNA microarray technology was used to measure the effect of cold shock on gene expression within Saccharomyces cerevisiae, budding yeast. Wild type strain BY4741 and strains deleted for the Cin5, Gin3, Hmo1, and Zap1 transcription factors were subjected to cold shock at 13°C and allowed to recover at 30°C. Four to five replicates were performed for each strain and time point. Total RNA was purified from each sample, fluorescently labeled and hybridized to a total of 103 DNA microarrays. Spatial and intensity biases present in the microarray data were corrected using Loess normalization and median absolute deviation scaling performed in the R Statistical computing environment using the limma package. Expression of each gene in a regulatory network consisting of 21 transcription factors was modeled by a nonlinear differential equation describing the change in expression over time as the difference between the production and degradation rates. Solving the differential equation using both a sigmoid function and Michaelis-Menten kinetics to model production showed that the latter more accurately describes repression and the case of an OR transcriptional gate. The degradation rates in the model were found in existing literature. The ode45 function in MATLAB was used to solve the differential equation model given a set of initial conditions. The fmincon function in MATLAB compared the model to the microarray data to find optimized weights and threshold constants by a nonlinear least squares fit criterion. The deletion strains were modeled by removing the gene from the dynamical system.

**Education Reform: A Look At Present and Future Business and Education Collaborations**

*Shana Aframian*

Education has traditionally been seen as the key to entry into the middle class, wealth, or a safe occupation. However, today’s education system, due to an assortment of circumstances, like budget cuts, increased bureaucracy, etc., cannot solely support their students’ education on their own dime. It is imperative that schools get the help they need to support its students’ futures by reaching out to outside institutions, specifically, those in the business sector. Today, efforts to reform education in this country have centered on making students college and career ready, as well as, adjusting the infrastructure of these schools to make them stronger for the students of the future. With this research, we hope to answer one question: how can the business community partner with education and help pool resources to assist in filling those financial gaps that the education system cannot fill itself? We are interested in understanding how to enhance the communication and delivery of services between these institutions. We will conduct our research through interviews and focus groups with the major stakeholders: students, teachers, business leaders, and principals of public and charter schools. We will also analyze current practices of the business community and K-12 schools. Finally, we will look into
education think tanks, not only, the ideas that are being pursued, but also the policy that can make these ideas possible. For this project, I will be collaborating with Darin Earley and Maggie Bove-LaMonica from LMU’s Family of Schools. We will meet every week to communicate our progress. Darin and Maggie have access to incredible resources that will allow me to not only get a full understanding of the core issue, but also to speak with the key decision makers in California school districts.

**Effects Anti-Gay Policy and Policy Debate in the United States on Young LGB Adults**

Gillian Dannis

Anti-gay legislation is codified in laws existing in the United States in opposition to lesbian, gay, and bisexual (LGB) issues or persons. In a political sense, it is resistance to a perceived gay agenda, which can include a variety of different issues such as same-sex marriage, employment protection for LGB individuals, and other related topics. Through the anti-gay legislation that persists and is widely debated throughout politics, as well as negative portrayals in the media and heterosexist interactions, LGB individuals are reminded on a daily basis of their existence as “second class citizens.” This study sought to investigate a perceived correlation between anti-gay policy and the way lesbian, gay and bisexual young adults think about their futures. Specifically, this study focused on how these policies, policy debate, and media focus affect the way LGB young adults perceive their future family life, in terms of romantic relationships and children. 5 LMU students identifying as lesbian, gay and bisexual were interviewed about their perception of anti-gay policies and the significance of these policies in their lives currently and potential significance in the future. In addition, 279 lesbian, gay and bisexual young adults age 18 through 25 participated in an in-depth online survey. Results indicate that the arguments supported by anti-gay policy and policy debates can have significant effects on the way LGB young adults view themselves now and in the future. Results also reveal a general optimistic sentiment regarding the abolishment of anti-gay legislation during the participant’s lifetime as well as a general optimism regarding future success in a partnership with another LGB individual. Findings highlight a need for further research on this understudied population as well as point to the necessity of developing adequate services to respond to the personal effects of anti-gay policies and public debate on these policies.

**Effects of California Redistricting on Minority Elected Officials in the California State Assembly and State Senate**

Isabel Casso, Alison Sackerson

In 2008 and 2010, Propositions 11 and 20 were passed by California voters, which called for the creation of the Citizen’s Redistricting Commission (CRC). The CRC became responsible for redrawing the district lines for the California State Senate, the State Assembly, and the State Board of Equalization. This study explores the impact of redistricting on ethnic minority representation in the California State Senate and State Assembly by tracking the number of new minority elected officials, as well as whether minority incumbents maintained their seats. Redistricting commissions typically act in order to take the task of redrawing districts away from legislators in order to promote competition during elections and reinstate a meaningful vote to citizens (Reyes, 2011). In our analysis we use the Top 300 Elected Officials in California dataset collected by the Center for the Study of Los Angeles, as well as demographic data for each redrawn district (aroundthecapitol.com). The Top 300 dataset records the 300 most powerful elected official positions in California and their representatives since 1959 and codes for ethnicity. Each candidate is coded as: incumbent elected to a new district, incumbent elected to the same district, or newly elected candidates. By analyzing the demographic characteristics of each district, we can contextualize the success or failure of minority incumbents and new candidates. Preliminary findings suggest that redistricting greatly improved minority representation in the State Assembly yet failed to significantly impact the State Senate.
Effects of Fire on Insect Populations on Santa Catalina Island
Sophie Crinion

The Two Harbors fire on Santa Catalina Island burned approximately 20 acres in May 2011. The fire occurred such that half a hillside was burned and the other half was left untouched by the fire, providing the perfect set-up for a comparison of disturbed and undisturbed habitat. Insect populations in both the burned and unburned areas have been monitored since June 2011. Aerial insect populations have been sampled using non-toxic sticky paper attached to four-sided posts oriented towards the four cardinal directions. Samples were collected for 24 hour periods once every four months. I expected to see a decrease in the insect abundance in the disturbed habitat due to the significant difference in vegetation. However, there was no significant difference found between the number of insects in the burned and unburned areas. This is possibly due to the diversity and resilience of insect populations. There were significantly more insects collected in June than in any other month and significantly fewer insects collected in January than any other month, following expected seasonal patterns. Further analysis will focus on the differences in species richness and diversity between the two habitats. This project is ongoing and data is still being collected to monitor long-term patterns as the burned site continues to recover.

Effects of Salamba Sirsasana on Heart Rate Variability in Advanced Yoga Practitioners
Steven Munassi

The effects of yoga practice have shown increased vagal modulation but there is limited information on which specific parts of yoga practice enhance cardiovascular autonomic control. The goal of this study was to evaluate the effect of salamba sirsasana (supported headstand), on heart rate variability (HRV). Advanced yoga practitioners (n = 16; 14 female and 2 male, ages 44.4 +/- 13.6 years) completed 3 trials consisting of 5-minute phases of shavasana (resting pose), salamba sirsasana, and shavasana. Breathing was paced during both trials of shavasana at 5 breaths per minute. Trials were divided between two days within a one-week period. Each trial was carried out in the most comfortable environment for the individual or in the Human Performance Lab at Loyola Marymount University. Heart Rate Variability measurements were assessed using the Polar RS800CX G5. Paired t tests revealed statistically significant differences in HRV in the very low frequency component (VLF) of trial 1 (p = 0.022) and trial 2 (p = 0.021). Statistical significance was also found in the high frequency (HF) component of post phases of 2 trials performed on the same day (p = 0.043). No trends were seen in low-frequency (LF) components. Salamba sirsasana results in significant increases in VLF component of HRV in advanced yoga practitioners. Significant increase of HF component suggests a clinically desirable increase in vagal tone. Future studies should examine the duration of the effect of inversions on HRV, the result of utilizing different inversions, and the outcome of these trials on non-practitioners.

Effects of Stress-Related Factors on Eyewitness Memory
Amber Nails, Autumn Nails

The following studies examined how factors related to stress affect eyewitness memory. In a pilot study, participants (N = 30) were randomly assigned to read crime descriptions where a weapon was present or not. They then answered questions regarding details about the crime. Results showed that participants in the weapon-present condition were less accurate (M = 10.83, SD = 2.00) than in the weapon-absent group (M = 14.83, SD = 1.36), t (24.67) = 6.41, p = .027, d = 2.34. This suggested that weapon-presence may cause eyewitnesses to be less reliable than eyewitnesses who are not exposed to a weapon. In Experiment 2, we examined whether effects of stress on memory are due to negative valence of the experience or to implied violence. Participants (N = 23) read a weapon-present crime description, viewed fifteen standardized images coded as negative non-violent, negative-violent, or neutral (IAPS; Lang, Bradley, & Cuthbert, 2005), and then answered questions about crime scene details. An ANOVA showed no overall effect of condition on eyewitness memory, p >.05. However, chi-square analyses revealed that participants in the negative non-violent condition answered questions regarding some
salient details less accurately than those in the other two conditions, p < .05, suggesting that eyewitness memory may be affected by negative images viewed shortly after a crime when a weapon is present. Consistent with other findings, we show that eyewitness memory is not always reliable. Factors such as weapon-presence and negative images may affect accuracy of recall for some crimes.

**Elastic Band Loading and Volume Quantification For Combined Free Weight and Elastic Band Bench Presses and Squats**
Sam Furie, Nathan Reyes, Todd C. Shoepe

Elastic bands concurrently combined with free weights have shown to be more effective at improving strength and power in athletic populations. Volume assignment as traditionally quantified (e.g. sets x reps x resistance) is a cornerstone of resistance exercise prescription in athletes. Due to the nonlinear stress-strain relationship of bands, volume cannot be linearly estimated as in free-weight loading paradigms. Because volume (high versus low) predicts metabolic and morphologic adaptation to exercise, accurate quantification of this relationship is essential for prescribing training volume and work. This is complicated by the varying limb sizes of athletes during squat (SQ) and bench press (BP), which influences the distance component of work calculations. Pre-determined band stress-strain prediction equations were mathematically integrated to calculate resistance and work throughout the range of motion. An ANOVA (Analysis of Variance) revealed no differences between male (N=6) and female (N=14) volunteers for any relative height variable resulting in pooled data. The mean (±SD) band lengths for SQ and BP were 52.6±4.5% and 54.5±2.8% of participant height at motion beginning, and moved a distance of 33.3±5.6% and 47.1±4.2%. For example, strength and conditioning practitioners can now apply individualized anthropometries of the participant such that a hypothetical 1.8m tall athlete performing the SQ will begin positive work at a mean flexed height of 0.9m and rise 0.6m to an extension height of 1.5m. Combined with a 20.5kg barbell, two orange bands yield a repetition load total of 168.2Nm, which equates to a free-weight-only workload of 7.3kg per repetition.

**Enjoy The Truth**
Rachel Fell

It is widely known that soda could potentially put one's health at considerable risk. The hidden ingredients, along with those that are labeled, have been proved to cause traumatic effects to one's health. Multinational 'soda' brands continue to use the power of advertising to benefit their own companies with a disregard for the health of their consumers. With this in mind, I am using their universally recognizable aspects to push the boundaries of copyright. I will reproduce well established advertisements in favour of the research I have found on these continued health risks to spread awareness and knowledge.

**Enrichment, Isolation, Purification, and Characterization of Phages FriendlyEddie, Fudge and Soto**
Taylor Arhar, Kathryn Orban

Phages, the single most abundant biological entities on Earth, are important in the fields of microbial evolution and therapeutics. For example, phages can be used as alternatives to antibiotics and thus tools for controlling bacterial infection. The goal of the HHMI Science Education Alliance Phage Hunters Advancing Genomics and Evolutionary Science (SEA-PHAGES) program is to research and generate information on phages, viruses that infect bacteria. The nonpathogenic M. smegmatis has a rapid life cycle that makes it an ideal Mycobacterium host for research. Soil samples were collected from the Loyola Marymount University campus from which phages FriendlyEddie, Fudge and Soto were enriched, isolated, and purified. These were achieved by seeding the samples with host bacteria and optimum
nutrients to increase phage number, then multiple rounds of plate streaking to isolate strains, and finally filter-sterilization. From observed plaque morphologies, it was determined that FriendlyEddie is a lysogenic phage, and that Fudge is a lytic phage. Performing restriction endonuclease analysis and polymerase chain reaction with cluster-specific primers, we were unable to assign either phage to a cluster. Clusters, in the case of mycobacteriophages, are the primary forms of classification. After being enriched, isolated, and purified, genomic DNA from phage Soto was sequenced using automated shotgun sequencing and pyrosequencing. Current work on Soto toward gene discovery, annotation, and comparative analysis with other sequenced genomes using bioinformatic tools such as BLAST, Phamerator, and DNAMaster will ultimately add to the overall knowledge of mycobacteriophages and genetic exchange by showing genetic evolutionary relationships among phages.

**Enumerating Gematria**
Naomi Cahn

For centuries, Jewish scholars have used gematria while interpreting and expanding upon holy texts. This system, in which a numerical value is ascribed to a word or phrase (in Hebrew, Greek, Latin, and Mesopotamian characters), has been used to relate words or phrases with identical numerical values. While there are several mathematical methods for calculating gematria, three basic methods will be explored in this project: Mispar Gadol and Mispar Hechrachi gematria, Reverse gematria, and Permutation gematria. Gematria is most often used to calculate the values of individual words, psukim (Biblical verses), Talmudical aphorisms, sentences from the standard Jewish prayers, personal, angelic and Godly names, and other religiously significant material, but there have been applications within the Kabbalah as well as non-Jewish sources. With gematria, the numerical values of letters have created a mystical art of searching for clues that will help those who utilize it to obtain a deeper, more profound understanding of the meaning and significance of words and phrases in Jewish texts. These mathematical calculations with alphabetic numeration have provided extra dimensions to holy texts and deeper understandings to Jewish thought - but only when they are used with caution to avoid the type of analysis that may lead to conclusions that are contrary to the spirit and principles of Judaism.

**Ethiopia - Past and Present**
Caleb Nyberg, Christopher Wonder

Ethiopia is a country with a population of over 90 million people located in Eastern Africa and is a country with a complex and unique character. This film looks at the rich culture and history of Ethiopia and tries to give an understanding of a way of life so unfamiliar to our own. By looking at the current capital city, Addis Ababa, we are given a view of the modern society, but when traveling to the northern part of the country along the historical route, we see the rich and unique history that Ethiopia has. With all of its traditions and culture, Ethiopia is currently a country of much change and development that has a bright future ahead.

**Evaluation of heat treated Ti-3Al-2.5V mechanical and microstructural properties**
Taylor Chavez, Molly Dearborn, Michael Miller, Ervin Tong

Ti-325 is a relatively new titanium alloy. This alloy is composed of 3 wt% aluminum, 94.5 wt% titanium and 2.5 wt% vanadium. The typical use of this alloy is in tubing in aircraft and engine hydraulic systems, pipes, and vessels. It is also used in foil and honeycomb applications, and sporting equipment such as golf club shafts, bicycle frames, and tennis rackets. Many scientists and engineers would like to replace the much more common Ti- 64 alloy, which is composed of 6 wt% aluminum and 4wt% vanadium with the Ti- 325 alloy because of its higher ductility. Although the Ti- 64 is a widely used alloy in many structures and other components, its brittleness and difficulty to manufacture are the main reasons for
its high cost. Little is known about the effects of different heat treatments and cooling procedures on the strength, ductility, and resilience of the Ti-325 alloy. As a result, various heat treatments were performed on cylindrical tensile test bars in order to optimize the mechanical properties of Ti-3Al-2.5V. The objective of this project was to determine the differences in microstructure, texture, and toughness of heat treated Ti-3Al-2.5V samples. The yield strength, ultimate strength, percent elongation, percent reduction in area, and Rockwell hardness of heat treated Ti-3Al-2.5V were determined. Twenty four samples were heat treated at 649, 815, 926, and 954 °C for an hour. Twelve of the samples were then air cooled while the remaining twelve samples were water quenched. Twenty seven samples were heat treated at 871, 926, 859, 938, 898 °C for an hour and then water quenched. The samples were then aged for six hours at 471, 482, 510, 538, 549 °C and then air cooled. The samples were tensile tested on an Instron machine, and then selected fractured surfaces were evaluated by scanning electron microscopy. Pole figures (0002) were determined by x-ray diffraction. The optimum strength and ductility of this alloy based on the previous heat treatments was obtained.

**Pioneering Voices in Feminist Rhetorical Theory**
Breanna Dungca, Bailey Grantz, Christina Guzman, Ericka Schwering

The purpose of this panel and the research question that each contributor faced was to explore the influence of prominent feminist scholars and their contributions to rhetorical theory. Three scholars who have changed the way the field thinks about rhetoric are examined. First, Karlyn Campbell’s field-changing research that discusses women’s liberation in terms of its unique strategies and stylistic features is discussed as well as how it can be applied to understanding the feminine style employed by Michelle Obama. Second, Sonja and Karen Foss’ contributions to the rhetorical canon are also explored to see how certain forms of communication are not tied toward gender as well as their theoretical construction of invitational rhetoric that moves away from patriarchal definitions based on persuasion. Finally, Judith Butler’s identity categorization of sex, gender, and sexuality as culturally constructed and performative is examined as well as understanding how these concepts operate in a text such as Ann Romney’s speech at the 2012 Republican National Convention.

**Exposing Cancer: Going Public to Raise Awareness**
Nicolas Garcia

Celebrities have become an obsession in our culture and we are fascinated by their glamorous lives. But, celebrities are not above ordinary people and can fall victim to the same diseases. An estimated 12.5 million people are fighting their battle against cancer in U.S. In addition, an estimated 1.5 million people will be diagnosed with cancer this year. This includes the celebrities that we adore. Some celebrities truly deserve to be called “role models” because they give back to the public. They accomplish this by using their position of power and fame to raise awareness and money for research of their disease. I will investigate how effective celebrities are in raising money and awareness for cancer and how involved they are with different anti-cancer organizations. This will be shown by the use of visual displays such as infographics and posters, along with an interactive oral presentation. By doing this, I can follow in the footsteps of celebrities and use my position as a producer at FOX 11 to raise cancer awareness in the future.

**Farnsworth-Hirsch Fusion Reactor**
William Eberts, Maximiliano Isi, Quin Thames

A great majority of the problems humanity will face in the 21st century are related to the efficient generation and storage of energy. In this regard nuclear fusion is one of the most promising technologies, being a potential solution to current and future worldwide energy needs. We demonstrate this principle through the construction of a Farnsworth-Hirsch fusor. This device works by causing
deuterium atoms to violently collide with enough energy to combine in a process that generates a by-product of radiative energy. In order to do this, we use strong electromagnetic fields caused by a high voltage difference between the center and outside of a vacuum chamber into which deuterium is pumped. Furthermore, an extremely high vacuum is required. Byproducts of the reaction are light and high energy neutron emissions, which have many uses in themselves. We demonstrate fusion in a contained environment and study possible improvements to the standard design, potentially gaining insights useful in the construction of large-scale fusion reactors.

FOREVER
Samantha McRoberts

During the fall of 2012, I studied abroad in Bonn, Germany with LMU’s Film and Television Study Abroad Program. While abroad, I discovered the love lock phenomenon throughout Europe. Inspired by this, I decided to research the phenomenon and make my junior film project on the topic. With the assistance of the Akademie für Internationale Bildung, I was able to get in contact with an Anthropologist professor, Dr. Dagmar Hänel, who works at the Institut für Landeskunde und Regionalgeschichte as well as a graduate student, Christina Siemens, who wrote her bachelor thesis on the phenomenon. Both women assisted my research on the phenomenon. Various Street interviews and three sit-down interviews with couples to learn more about the public’s opinion on the phenomenon, supplement the documentary. Producing a film in a foreign language proved to be a challenge since I do not speak German; however it gave the film more authenticity. The documentary reveals the importance of rituals. In today’s society, rituals and traditions are becoming scarcer, so the new love lock ritual says something about today’s society in two ways; people want to believe that true love still exists and they still desire rituals and traditions. The film itself also illustrates that there are different kinds of relationships and there are many different ways to express love. I hope this film reminds the world to love again and that true love is possible.

Forgive Me Homie
Mina Mohaddess

For my intended topic of research, I propose a philosophic inquisition of the nature of forgiveness. I aim to prove forgiveness as a truly individual act; an act of acceptance, self-love and the most profound means for growth and happiness. In my experiences as a volunteer at Homeboy Industries, I have observed an atmosphere of optimism and progress. This stems from the blossoming self-love of the “homeboys” and “homegirls” who are learning to forgive themselves for their pasts. As I continued to volunteer, I built relationships with members who would be willing to share their stories and divulge their transgressions. It was my aim and hope to aid them in their progress toward self-love with my research on forgiveness. I recorded our sessions to communicate their growth and developing acceptance of themselves as they began to forgive. Moreover, through my interactions, I was able to distinguish forgiveness from the variance of states resembling it. I was able to conduct specific research and discussions of denial, projection and personal responsibility. Among my personal motivations for this research, I desired greater understanding of the universality of human emotion. I sought to utilize this understanding to explore my own ability for forgiveness. Forgiveness is the individual act of reconciliation of logic and emotion that allows for acceptance and self-love. This restoration and maintained balance between the rational and irrational parts of self is happiness. I, like all people, desire happiness and hope to spread its means by way of this research program.

From Art to Obscurity: The Evolution of the Portrayal and Perception of Homosexuality in Eastern Asia
Cady McLaughlin

I will be attempting to demonstrate that due to certain cultural shifts and historical events the acceptance of homosexuality has changed throughout the years in China, Japan and South Korea. Films
Functionalization of Composite Materials for Tribological Applications Using Atmospheric Plasma Techniques
Erik Cabral, Wes Miller, Daniel Peterson, Patricia Pichardo, Dev Sharma

Composite materials consist of solid fibers reinforced by matrix resins, and the bonding strength between these two phases is one of the foremost factors of composite design. Bonding strength is known to influence a number of tribological material properties, including coefficient of friction and wear volume loss, key for sliding-component applications such as gears, bearings, and bushings. As a technique to improve composite bonding strength, fiber surface treatment using atmospheric plasma has become a prevalent topic in industry and research. Our review of recent research literature shows that plasma surface treatments are universally effective in the enhancement of tribological properties. These reviewed studies have explored numerous combinations of unique composite materials treated with different varieties of atmospheric plasma. Most of these tribological studies, however, have explored only sliding wear, employing ball-on-disc or pin-on-disc testing. Our review has shown that very little has been explored about the effects of plasma treatment on fretting wear and cases of low-amplitude oscillation, such as seen in riveted joints and other applications. The direction of this inquiry is to identify these effects through a myriad of analysis techniques such as Design of Experiments (DOE), looking into the interaction of treatment parameters and resulting tribological effects. It is hoped that plasma surface treatments can make these materials more suitable for fretting wear applications and resistant to material failure. In addition, Scanning Electron Microscopy (SEM) and White Light Interferometry will be used to observe microscopic effects due to the composite treatment and testing.

Generating Fur in 3D Animation
Amanda Goad

This project focused on the development of a solid step-by-step guide to generate fur on animated characters, known as a "pipeline" in the animation and visual effects industries. This fur pipeline was achieved by using various 3D software applications, and was tested on two 3D computer animated characters, a horse and a dog. The final pipeline is employed in the creative project "El Botín," an animated film by Assistant Professor Adriana Jaroszewicz. This research consisted of studying the physical characteristics of real life fur, and then applying these observations into 3D computer graphics using industry best practices. Animated assets from Autodesk Maya 3D software were exported to Side FX Houdini 3D software, where fur was generated and customized. Mudbox 3D painting software was used to create detailed image maps which were brought back to Houdini to further enhance the look of the fur. Final fur images were rendered using Mantra, then composited and color-corrected in Nuke. The result mimics industry methodologies, as real life observations were dissected and applied to virtual worlds. Encouraging the development of a seamless integration of physically accurate elements into stylized virtual assets to achieve a believable result is crucial as we move into a computer-driven world
where the implementation of these techniques can be applied to other areas beyond entertainment, such as scientific visualization and education.

**Girlhood On Fire: Female Virtue and the Power of Performance in The Hunger Games**
Katherine Gates

Suzanne Collins marks the latest addition to a canon of writers – as old as Jane Austen’s novels and William Shakespeare’s plays – who depict girlhood in their fiction. Collins’ controversial series, The Hunger Games, provokes me to wonder what the text conveys about our contemporary, diverse society and where the literary imagination evolves with Collins’ feisty heroine, Katniss Everdeen? Katniss follows in the footsteps of Anne Shirley, Jo March, and Hermione Granger, characters who “have shaped the social vision of female identity” (Lerer 229), argues Seth Lerer in Children’s Literature: A Reader’s History from Aesop to Harry Potter. Lerer introduces the idea of the young female character torn between acts of absorption and performance, evident in classics like Anne of Green Gables and Little Women. Yet unlike girlhood fiction that “figure forth ideals of a creative life” (Lerer 247), Collins imagines a futuristic, post-multicultural society where ingenuity is outlawed, if not, outright destroyed. Within the strict surveillance culture of Panem, a perverse “tradition” lands Katniss in the 74th annual Hunger Games where she must fight to the death with tributes from other districts. In the arena, Katniss alternates between roleplaying to woo the Capitol’s audience (and stay alive), and proving “That I’m more than just a piece in their Games” (142), as Peeta, the other tribute from District 12, says. Collins’ character affirms trends in the girls’ books genre – i.e. a tendency towards theatricality – but ultimately, Katniss’ intuition and maternal instinct save her life and ignites a revolution.

**Green Team**
Claire M. Andreae, Brian Williamson

Waste threatens our environment and pollutes the earth both visually and chemically. The American culture of consumerism is responsible for this waste, and therefore each community must implement programs to manage its resources wisely in order to limit waste and sustain the earth’s environment for future generations. Loyola Marymount University’s on-campus recycling program is exemplary in combatting waste and is one of LMU’s main initiatives towards creating a sustainable community. This five-minute documentary film highlights the operations and effectiveness of LMU’s recycling program, which is run by staff and student-workers. After researching the history of LMU’s recycling center, we prepared to film at the recycling center and to interview the student-workers and affiliated staff. The interviews deepened our understanding and appreciation of LMU’s unique and innovative recycling program, which has received many awards. By talking with our fellow classmates, we also realized that not many know about LMU’s recycling program. Furthermore, many students do not seem to be aware of the negative consequences of inefficient waste management. Therefore, we hope to increase awareness for recycling and to present LMU as an excellent example in waste management through this film. It is our hope that LMU’s efforts will inspire other universities to invest in efficient recycling programs, and encourage students, not only at LMU, but also across the nation, to participate in the joint mission of creating sustainable communities.

**Growing Pains at Diaper Dude**
Aneese Bishara, Hector Gonzalez, Gobind Manwani, Andrew Vranicar

“Growing Pains at Diaper Dude” is a theory-driven teaching case and instructors’ note written by four CBA entrepreneurship students. The case allows readers to apply, in a real-world way, several important theoretical models of new venture creation, new venture growth, and entrepreneurial process. The case was written using primary data, collected through a series of interviews with the Founder/CEO and his top manager, at an offsite location and at the company’s headquarters, plus supplementary retailer visits/interviews. Secondary research included analysis of financial statements, industry data, and
product reviews. Diaper Dude was the first male-centric diaper bag line in the baby industry. The case shares the story of Diaper Dude’s growth from a small startup to a million dollar plus business – and sets up the founder’s next challenge: where to go next? Pegula and his top manager have identified three options: Travel Dude (a luggage line), Dapper Dude (an apparel line for daddy and baby), and a licensed line of Diaper Dude bags (from NFL teams and well-known rock bands). The case asks students to consider which option(s) the founder should pursue in order to maximize financial success while also growing his business in accordance with the Diaper Dude brand?

Guadalupe in Highland Park Exhibition
Maria Ruiz

Our Lady of Guadalupe, who appeared to Juan Diego in 1531, continues to be an empowering presence in the lives of Her believers around the world. In the Los Angeles neighborhood of Highland Park, the image of Guadalupe can be seen on murals, articles of clothing, candles, tattoos, and home altars, among others. Using a feminist and decolonizing methodology as well as public art practice, I propose an exhibition which acknowledges the voices and visualized spirituality of St. Ignatius Parish members from the Highland Park community and provides understanding about their experiences with Guadalupe. The art for this exhibition emerged from a workshop that invited participants to engage in art-making as a form of prayer. During the workshop, members of St. Ignatius Parish created retablos, devotional wooden boxes, inspired by their relationship to Our Lady of Guadalupe. As an aesthetic and religious format, the retablo has a long tradition within Latin America, the ancestral homeland of the participants. Although the workshop produced a product, the retablos, the process was just as important to the participants because they understood art-making as a form of prayer and self-reflection. Their reflections were recorded and transcriptions of their voices are included in the exhibition. By linking art-making to spiritual expression the work and the exhibition challenges the discourses of higher education and the art world, which traditionally separates these two phenomena.

Historical Biogeography of Bladderpod Peritoma
Amanda Ballard, Sheida Davoodian, Beatriz Guerra, Anita Simonian, Laura Terada

Ramirez & Beckwitt (1995) found that the mainland populations of the spider genus Lutica are only 57 km. apart at their southern and northern boundaries respectively [between La Jolla Beach, Ventura and the Ballona Wetlands, Los Angeles], yet spiders from these regions are members of different taxa. This disjunction may reflect former presence of the Los Angeles River, which discharged into Santa Monica Bay via Ballona Creek until 1825. The long-term presence of the mouth of the Los Angeles River may have constituted a significant biogeographic obstacle for the movement of dispersal limited coastal dune organisms such as Lutica. In order to investigate whether the western drainage of the Los Angeles River may have influenced the evolution of other coastal dune taxa, we are studying the genetic differentiation among populations of a coastal plant, bladderpod (Peritoma arborea var. arborea). The genotypes for variable loci are determined for each plant using allozyme electrophoresis, a commonly employed molecular genetic technique. In summer and fall 2012, we worked to adapt the allozyme protocols of Truesdale et al. (2004), while surveying several sites in Los Angeles, Ventura and Santa Barbara for the presence of bladderpod. Thus far, we have perfected successful combinations for two enzymes (PGI, PGM). This spring, we are continuing this effort in hopes of having several variable loci to work with, such that the sampling of bladderpod populations north and south of Ballona Creek can commence in summer 2013.
The end of the Cold War generated a significant shift in international relations policy and enforcement. Security no longer refers to the basic stability of the world’s nations, but it additionally encompasses a human element, termed human security. Humanitarian intervention in the post-war era therefore, has become an important tool to advance not only peace within and among nations, but also to ensure the safeguarding of the rights and lives of citizens in all countries. Unfortunately however, humanitarian interventions are few and far between. Western powers have often been criticized for arbitrarily targeting certain crises over others for their aid. Little existing literature addresses exactly which factors contribute to world leaders’ decisions to intervene, and the arguments scholars rely on often have significant drawbacks. This paper seeks to understand why peacekeepers are deployed to certain conflicts, while in others, citizens are left to suffer. I assert that refugees create motivation for humanitarian intervention through various mechanisms, including the spillover to neighbors, the security threats to host nations, the proximity to a strong and developed country, and the voices of diaspora communities. Utilizing an empirical case study approach, this research examines the post- Cold War interventions conducted in countries such as Bosnia, Haiti, Kosovo, East Timor, and Libya in order to assess the impact that the refugees from each crisis imposed on the international community, thus leading to action. Deeper insight into what motivates world leaders to act on behalf of human rights is the groundwork for proper humanitarian efforts in the future.

"Infotainment” defines the genre of news production characterized by the synthesis of information news and entertainment. Deviating from “strictly business” news styles of Dan Rather and Walter Cronkite, information immediacy has shaped the field of journalism into an industry concerned with Nielsen ratings, less devoted to ethically serving the community. As a satirical response to conservative infotainment, the character, persona, and narrative voice offered by Stephen Colbert of Comedy Central’s The Colbert Report can act as a social response to contemporary news production, highlighting the “infotainer” as an imminent danger of infotainment consumption. Colbert’s portrayal of an attention-seeking news anchor underscores the painstaking battle between journalism and the journalist. This paper explores The Colbert Report as a narrative-driven rhetorical situation, observing how Colbert’s narrative elements of alarmist sensationalism, ephemeral conservatism, and media spectacle underline the social tendencies of conservative news production found within the infotainment industry.

The molecule 1,2,3,4,6-penta-O-galloyl-beta-D-glucose (PGG) has previously shown to possess positive pharmacologic activities that of which include anti-cancer and anti-diabetic. There is very little knowledge about the mechanism of action of PGG that results in these positive pharmacological activities. We show in this study that PGG is a strong inhibitor of IAPP (Islet Amyloid Polypeptide, Amylin) aggregation. Preventing the initial aggregation of IAPP is a strategy amongst others that can slow down the progression of Type II diabetes, and possibly prevent the disease from occurring. Equal molar ratios of PGG to IAPP substantially reduced the ability of IAPP to bind to thioflavin T. Atomic force microscopy showed that PGG prevented amyloid-based fiber formation under rigorous conditions conducive to forming IAPP aggregates. PGG was also found to protect PC12 rat cells from toxic IAPP. Known inhibitors of IAPP, tannic and gallic acid (structure relatives) were both compared to PGG. In
every test, PGG was far superior to tannic and gallic acid at inhibiting IAPP aggregation. These results suggest that PGG is a potent inhibitor of IAPP amyloid aggregation and also that it may be a potential lead molecule for the development of an amyloid inhibiting therapeutic drug.

Identification of Potent IAPP Aggregation Inhibitor
Daniel Conti

Type II Diabetes affects over 8% of the US population, nearly 26 million people. It is more prevalent in older populations, so as the baby boomer generation ages, it is expected that the percentage of Americans with Type II Diabetes will rise significantly. There is no cure and it is a significant risk factor contributing to heart disease, high blood pressure, stroke, kidney failure, dental disease, and amputation-requiring infection. The total cost of diabetes to the United States in 2007 was $174 billion, including direct medical costs and indirect lost productivity costs. The accumulation and aggregation of Inslet Amyloid Poly-Peptide (IAPP) in the pancreas is linked to the death of insulin producing cells and the development of Type II Diabetes. If IAPP was inhibited from aggregating in the pancreas, it is likely that Type II Diabetes would be halted (perhaps even reversed). Previous experiments, utilizing E. Coli based fluorescent screens, identified an organic compound that was a potent inhibitor of IAPP aggregation. However, on subsequent analysis it was determined that the original compound tested (the potent inhibitor) was not the pure product expected from synthesis. Instead, we have an unknown compound as an extremely potent possible inhibitor of IAPP aggregation. A comprehensive analysis of the compounds identity was conducted using nuclear magnetic resonance and liquid chromatography tandem mass spectroscopy. Obtaining the identity of this compound will enable future synthesis and continued testing of its ability to inhibit IAPP aggregation in vivo.

Infidel, Foreign, and Barbarous: The Habituated Aversion to Socialism in U.S. Popular Opinion
Ramona Martinez

In considering the aversion to socialism in U.S. popular opinion, I ask the following: “What are the psychological remnant effects of the Cold War on the American collective consciousness and how has this affected American perception of socialism?” I approach the question from a theoretical standpoint and identify the three following frameworks to guide my analysis: 1. Collective consciousness/Group Mind, 2. Political socialization, and 3.Rousseau’s ‘civil religion.’ I synthesize these frameworks to analyze the media portrayal of socialism from the onset of the Cold War to the present in examining the images that have infiltrated the American mind and informed American ideas of socialism. I analyze twenty-one films in total by selecting the three top-grossing films per decade with Cold War content from 1945-2009. Continuances of certain themes, images, and sentiments in the present suggest the remnant effects of the Cold War on the American collective psyche. While the crux of this work is a theoretical argument, I employ film analysis to illustrate the abstract concepts upon which the work is based. I demonstrate that patterned media portrayal over several decades has repeatedly portrayed socialism as counter to American values and identity. I argue that such framing has penetrated the American collective mind and conditioned a systemic rejection of socialism, and that the subsequent result of this habituation is the rendering of socialist affiliation as nearly heretical. This work is significant for its novel reinterpretation and expanded use of the notions of civil religion, political socialization, and collective consciousness.

Integrins and Mechanosensitive Ion Channels in Reactive Dilation
Douglas Land

When exercising our arteries change diameter to supply contracting skeletal muscles with the oxygen and nutrients they need to perform. The increase in blood flow to active muscle is primarily controlled
by dilating feed arteries. These arteries have been shown to respond to a period of reduced intraluminal pressure by dilating when pressure is returned to baseline levels. Previous work in our lab has shown that increasing the duration of pressure reduction amplifies the magnitude of reactive dilation. Previous experiments have shown that integrins also mediate part of the reactive dilation. We investigated how both endothelial and smooth muscle arterial integrins are involved in the mechanism of the reactive dilation. Rat soleus feed arteries were isolated and cannulated for in vitro videomicroscopic observation. Intraluminal pressure protocols were performed with decreases from a baseline of 115 cm of H2O to 14 cm of H2O for 30 sec, 1 min and 2 min periods followed by a return to baseline pressure. This was done using blockers. We passed 7 ml of air through the arterial lumen for denudation which inhibited dilation to pressure reductions. We used 0.5 mM F11 function blocking antibody and 0.5 mM amiloride which failed to inhibit the reactive dilation. These data suggest that a large portion of the reactive dilation response is dependent upon the endothelium but that some other mechanism is also contributing to the reactive dilation response. These data also suggest that non-β3-integrin subunits are involved in this reaction but stretch activated channels are not involved.

Interactions Between the Dead and the Living in Ancient Egypt
Ryanne Haymer

For centuries, civilizations have been plagued by questions surrounding death: What happens to people after they die? Where do they go? What role do they play? In many cultures, the realm of the dead is quite removed and distinct from the realm of the living; however, the Ancient Egyptians believed that these two worlds were deeply intertwined. Through a study of both primary and secondary sources, it is evident that the dead played a significant role in the lives of the living and vice versa. My presentation will discuss the influence of the dead in the world of the living, illuminate the impact the living had on the dead, and explain the manner and means by which the living and the dead communicated. The living could contact the dead through letters and ancestor busts to ask for intercession or to blame the dead, while the dead contacted the living through their dreams. There were also several ways in which the deceased were dependent upon their living relatives. It was the duty of the relatives to aid in the safe passage of the deceased from this world to the next. They did this by ensuring all of the burial rites and rituals were performed correctly, making offerings to the deceased, and by uttering the name of the deceased. The communication and interdependence between the living and the dead clearly shows the intimate relationship the two realms shared in the mind of Ancient Egyptians. Overall, the continued existence of the dead and a peaceful life for the living both hinged on the communication and contact between the two realms.

Intermittent Pneumatic Compression May Improve Bone Mineral Density at the Hip
Zakkoyya Lewis

Osteoporosis is a chronic disease of major public health concern which results from low bone mineral density [BMD] and increases risk of fracture. Research is needed to evaluate methods that may increase BMD in effort to combat osteoporosis. Recent studies suggest that intermittent pneumatic compression [IPC] may deliver an osteogenic effect by improving BMD. The present study evaluates the feasibility and potential benefits of IPC on BMD at the hip of individuals without injury. Nine participants (3 male, 6 female) completed IPC treatment on one leg 1 hour day, 5 hours/week for 10 weeks. Pressure was set to 60 mmHg when using the PresSsion (Chattanooga, Vista, CA) and Flowtron Hydroven (Huntleigh Helathcare, Eatontown, NJ) compression units. The intervention was preceded and followed by measurements of anthropometrics, BMD, physical activity and nutrient intake. Results: The average number of completed intervention sessions was 43.4 (±3.8) at an average duration of 9.6 (±0.8) weeks. A two-way, repeated measures analysis of variance (ANOVA) indicated a significant difference in BMD change between treated and non-treated limbs at the femoral neck (p=0.023), trochanter (p=0.027), and the total hip (p=0.008). On average the treated hip increased 0.4-1.0%, while the non-treated hip displayed a 0.7-1.7% decline, depending on the bone site. Results of this preliminary investigation suggest that IPC may be osteogenic and warrants further investigation.
Intra-cultural Variations on Death: a Guatemalan Example
Leslie Rodriguez

The presentation showcases a virtual museum exhibition, entitled Intra-cultural Variations on Death: a Guatemalan Example. The idea for this museum emerged from an American Cultures class which challenged students to think differently and create new forms of representation that do not reproduce racial inequality. My project explores how two cultural groups, both Guatemalan, respond to death and mourning. It also illustrates the power dynamic which foreigners face when migrating to the United States. The goal of my museum is to solve the problem that museums face when visitors’ knowledge is discounted. I re-conceptualizing the museum and audience relationship by dismissing the red rope which surrounds works of fine art, and I enable a deeper relationship with the objects. In addition, I value the experiences of people who have first hand knowledge, called “first-voice.” Utilizing interviews with my Guatemalan parents, visitors hear about their cultural experiences through a powerful topic, death. Furthermore, my museum challenges the European museum model and its architectural emphasis on ancient Roman temples and Italian Renaissance buildings. I propose that my museum will be located on the intersection of Washington and National Boulevards. This location, an intersection, is under the newly built Metro train station; this means of transportation has contributed in the intersections diversity of race through its connection of Downtown Los Angeles to Culver City. This new museum will allow different cultural groups to be observed through a first voice perspective in a neutralized space.

Investigating the role of exopolysaccharide in plant-host recognition by Burkholderia tuberum
Katherine-Anne Kimura

The symbiotic relationship between bacteria and plants is well researched. In particular the relationship between Rhizobiaceae (alpha-proteobacteria) and plants of the Leguminoceae is well documented. The bacteria, in specialized root structures called nodules, are able to fix atmospheric nitrogen into ammonia—a form usable to the plant. Recently, members of the distantly related beta-proteobacteria, such as Burkholderia tuberum, have been found to also exhibit a nitrogen-fixing symbiosis with legumes. However, the mechanism for which beta-proteobacteria form nodules on plants is not well understood. Previous research has found that production of exopolysaccharide is important for establishing the plant-bacterium symbiosis with alpha-proteobacteria. We are investigating if exopolysaccharide is also important for plant-host interaction with B. tuberum. To do this, we are using molecular methods to generate a deletion mutant of exoY, a gene critical for the alpha-proteobacteria symbiosis. This has involved using the polymerase chain reaction to amplify the border regions of the gene and cloning them into a vector that can be used to generate the exoY deletion. We are currently confirming that we have successfully created the deletion construct. Once confirmed, we will then be able to generate the exoY mutant and inoculate plants with this mutant strain to determine if nodules and an effective symbiosis form.

Investigating the role of glutathione in cadmium tolerance of Drosophila melanogaster
Austin Nguyen, Ellen Zirkelbach

The fruit fly, Drosophila melanogaster, shows variable and selectable resistance to cadmium. Our lab has previously selected for resistance and observed a decrease in cadmium content in the fly body as a result. While a majority of the available literature focuses on a metallothionein-mediated sequestration pathway for resistance, the observed decline in cadmium content may suggest an alternative excretory mechanism. Our previous genetics study on the resistant line indicates that the X chromosome significantly contributes to resistance. Currently, through a series of crosses with multiply-marked X chromosomal flies, our lab seeks to isolate the region of the chromosome containing the genetic factor(s) contributing to resistance. Several genes involved in the production of glutathione, a known antioxidant and metal chelator, are located on the X chromosome and may represent candidates for the
X-linked factor. We are investigating the relationship between glutathione levels and cadmium sensitivity using a number of strains over- and under-expressing genes in the glutathione synthesis pathway.

**Investigation into Photosensitized Oxidation of Indole Derivatives**  
Coralie Eilers, Alex Prevallet, James Sekab, Daniel Sun

It was recently demonstrated that antibodies can produce hydrogen peroxide catalytically when irradiated with light at 310 nm. The catalytic activity spectrum of this process mirrors the absorption spectrum of tryptophan, demonstrating the important role the photooxidation of tryptophan plays in this reaction. This novel reaction of antibodies may question the role antibodies may play in eliminating antigens. This research intends to shed light on the exact mechanism by which tryptophan produces hydrogen peroxide catalytically, through the analysis of intermediates formed through this process. The indole derivative N-acetyl-2-tert-butyl-tryptamine was successfully synthesized via the Fischer indole synthesis. The protected tryptamine derivative was subjected to photosensitized oxidation via singlet oxygen and the key hydrogen peroxide intermediate was identified. Experimental NMR spectra were compared to calculated NMR spectra to elucidate the structure. Compound degradation studies have been conducted and preliminary studies of the reaction pathway to understand the energetics of bond breaking and forming are reported.

**Isolation and Analysis of Bacteriophage Crush, Cmilk, and Soto**  
Nydia De La Cruz, Shaunt Gharabegian, Sarafina Rush

Bacteriophage are the most abundant biological entities on the planet, making them important to analyze. From phage analysis we hope to gain knowledge of the genetic diversity of phage and their potential benefits to society. During the Fall 2012 semester we enriched soil samples from various locations utilizing the bacterial host, Mycobacterium smegmatis and isolated the phage contained in the samples. We performed multiple rounds of purification to obtain a homogenous phage stock. Our particular phage, Crush, was found to be lysogenic when plated with M. smegmatis and incubated for 24 hours. The DNA of Crush was further analyzed using restriction endonuclease analysis and gel electrophoresis. We then proceeded to perform PCR with cluster-specific primers, in order to determine the cluster (classification) of our phage. Data from PCR analysis indicated that Crush belongs to the A2 subcluster. The phage Cmilk was a lysogenic phage that exhibited very small plaques when plated with M. smegmatis, smaller than 1mm. Phage Cmilk was very sensitive to storage over time and therefore discontinued. Crush was analyzed by electron microscopy (EM) and found to be siphoviridae with an isometric head and a tail length of approximately 140 nm. Current work with the genome of phage Soto involves DNA sequencing and genome analysis using bioinformatic tools: BLAST, Phamerator, and DNA Master, to annotate the genome and determine identify its genes and putative gene functions. Our annotation data will enlighten our knowledge about phage evolution.

**Isolation and Characterization of Phages Bullseyed, Sumatra and Soto**  
Erich Eberts, Nathan Pihl

Bacteriophages are viruses that infect bacteria and use them as a host for their reproductive cycle. Due to the fact that they are the most abundant biological entity, bacteriophages are extremely important to microbiology and evolution. There are multiple potential applications of bacteriophages in the medical and microbiology research fields. In the HHMI program at Loyola Marymount University, we collected two soil samples, we enriched and isolated two specific phages, Bullseyed and Sumatra, with the bacterial host Mycobacterium smegmatis, purified them to homogeneity and prepared high titer lysates. Then, we isolated the genomic DNA in order to classify it into a probable cluster (phage classification). Furthermore, another phage, Soto, was selected for genome sequencing. During the isolation process,
we recognized a bulls-eye appearance in the 3-5cm plaques of the fast growing phage Bullseyed. We hypothesized this was due to the phage going through alternate lytic and lysogenic life cycles. Using electron microscopy, we determined that both phages are of the family Siphoviridae. We analyzed the genomic DNA with restriction endonucleases, gel electrophoresis and PCR, and determined that Bullseyed most likely belongs to the A1 sub-cluster and phage Sumatra most likely belongs to the F2 sub-cluster. Although it is the most common sub-cluster overall, there are not many A1 phages found west of the Mississippi River. Currently we are analyzing the DNA sequence of Soto using bioinformatics tools such as BLAST and DNA Master. This will help determine its relationships and differences to other phages.

**Isolation of Bacteriophages Magoo, Woozle13, and Soto**
Nicole Enciso, Rakiyah Johnson

Bacteriophage are viruses that infect bacteria. The life cycle of bacteriophage consists of entering a host and using the host for its replication. Bacteriophage conclude their life cycle by lysing the host cell, allowing their genetic material to infect new host bacterium or existing as a lysogen, where bacteriophage genome is integrated into the host genome. We were able to enrich, isolate, and purify two bacteriophages, Magoo and Woozle13 that infected Mycobacterium smegmatis. We obtained purified DNA from our bacteriophage. Subsequently, we used restriction endonucleases to estimate the length of the bacteriophage DNA. Polymerase chain reaction (PCR) using cluster-specific primers was performed followed by gel electrophoresis to classify which cluster-family our phage belong; Magoo is a putative cluster E phage and Woozle13 is a putative subcluster A2 phage. Electron microscopy was utilized to examine the morphology of phages Magoo and Woozle13 and we conclude that both phage are of the Siphoviridae family. Our current work focuses on annotating the genomic sequence of bacteriophage Soto using the bioinformatic tools, BLAST, GenBank, and tRNAScan-SE, Phamerator and DNA Master. Annotation and analysis of the Soto genome will allow us to place Soto in a phage cluster as well as identify its genes and putative gene functions. This comparative genomic research will contribute to the greater understanding of bacteriophage and their potential role in the evolution of their hosts.

**Isolation of Steve27 and Analysis of Phage Soto**
Alex Kryger, Kevin Wyllie

Bacteriophages are the most populous biological entities on Earth. This research aims to gain insight into the genomic function of bacteriophages, and in turn, their evolutionary lineage as well as how they have influenced the evolution of bacteria. We enriched, isolating and purifying phage Steve27. Following purification, we analyzed Steve27 with a goal of cluster assignment (akin to genus and family classification of organisms). We employed laboratory plating techniques and subsequent restriction endonuclease, gel electrophoresis, and polymerase chain reaction analysis. We found mycobacteriophage Steve27, to belong to the B1 cluster. Also, this phage was determined to be part of the siphoviridae family by its morphological features, which were observed using electron microscopy. Following DNA isolation, a single phage (phage Soto) DNA was chosen for genome sequencing. The sequence of Soto was determined by 454 sequencing, and current work focuses on analyzing and annotating the genes for this phage, using several bioinformatic programs, such as BLAST, Phamerator and DNAMaster. Here we report the annotation of the phage Soto as well as a comparison between its genomic DNA and that of the other sequenced phages in the PhagesDB database. This will provide an idea into the phage’s history, with regard to genetic exchange and evolutionary origins.
La Brea Tar Pits: Does the body size of two large, now extinct late Pleistocene carnivores follow similar patterns of change over time?
Hannah Linnemeyer, Richard Smith

During the late Pleistocene, there were environmental and ecological changes including glacial periods during which temperatures changed significantly. These may have directly and indirectly affected carnivores and herbivores, and may have contributed to the extinction of many large species about 10,000 (Ka) years ago. Dire wolves, Canis dirus, and sabertoothed cats, Smilodon fatalis, both became extinct approximately 10 Ka, and are amongst the most common vertebrate species found at the Rancho La Brea tar pit collection at the Page Museum. C. dirus and S. fatalis bones have been collected from pits which are asphalt seeps that contain a collection of fossils, some of which have been radiocarbon dated to a distinct time period. In this study, limb bones of C. dirus and S. fatalis were measured by length and width and compared based on their age ranges. In dire wolves, there was trend of increasing limb bone size from ~33,000-16,000 Ka, a decrease in limb bone size from ~16,000-14,000 Ka, followed by a slight increase before extinction. S. fatalis demonstrated some fluctuation, but none of it appears to be significant, which is quite different than the C. dirus results, and this difference is also reflected in other studies. This may suggest that these species are under different selective pressures and that they shouldn’t be grouped into a single unit to explain size changes and extinction.

LA Votes: Mayoral Election 2013
Sarah Palacios

Always ahead of the nation in demographic shifts, Los Angeles has played coalition politics for 30 years (Samad, 2012). A model of where the rest of the nation is headed, L.A. politicians have taken note of the multifocal politics. Former Los Angeles mayor Tom Bradley became the first African American mayor of a major American city without a black population majority by creating a winning alliance of liberal Westside whites and South L.A. blacks. Antonio Villaraigosa, the first Latino mayor in Los Angeles in over 130 years, pulled together the Latino voting bloc and Westside for his two term win. While in-group cohesion has been historically contingent on ideological or historical bonds, it now takes shared mutual interests to sustain coalitions (Kaufmann, 2001). With the 2013 primary campaign in full force, this project asks, what is the winning mayoral coalition? Using projected vote demographics for each candidate, endorsement records, and 2012 and 2013 exit poll survey data collected by the Center for the Study of Los Angeles, I analyze demographic and group affiliation questions to provide clearer context as to who these voting groups are and how they relate to one another. I hypothesize that Westside liberals and the growing Latino voting bloc will be an especially driving force in this election race. By determining a winning coalition, the interests of these groups can be clearly defined by the issues that unite them, with further promise of confronting the city’s needs.

Macroseepage of light alkanes at the La Brea Tar Pits in Los Angeles
Roger Baril, Paul Contreras, Ikenna Nwachuku

Macroseepage of light hydrocarbons were measured over tar seeps at the La Brea Tar Pits in Los Angeles, California. The macroseepage levels were measured using aluminum flux chambers and 2 L stainless steel canisters and were quantified with gas chromatography using flame ionization detectors (GC-FID). Flux was determined by first taking a reference sample of ambient air at the time of deployment of the flux chamber and using the reference as a background concentration. Hydrocarbon macroseepage was collected over ten minute time intervals at multiple locations within the La Brea Tar Pits. Samples taken over tar seeps correlate with high flux rates and an estimated total light alkane (C2-
C5) flux of > 300 mg m-2 hr-1. A maximum flux of > 1 g m-2 hr-1 of methane was observed. The methane to ethane ratio of fluxes was higher than ratios associated with typical oil/natural gas signatures. Macroseepage rates appear high enough to be an important local source of light alkanes in Los Angeles.

Mary in Chains? A Theological Evaluation of Elizabeth Johnson’s Mariology
Eireen Ty

Mary of Nazareth is, after Jesus, probably the most influential figure in Christianity, especially in its Catholic and Orthodox versions. Over the last 30 years, feminist scholars have taken a particular interest in Mary’s role in the Church and her place in Christian theology. Feminist scholars including Rosemary Radford Ruether, Elisabeth Schussler Fiorenza, and Elizabeth Johnson note that her elevation as both mother and virgin has resulted in a Janus-faced construction of her that is complicit in both the empowerment and the enslavement of women. Johnson’s main Mariological study, Truly Our Sister: A Theology of Mary in the Communion of Saints, argues that a more accurate image of Mary should be that of companion within the community of disciples rather than as symbol of what men consider to be the perfect woman—an image that has been shaped in a patriarchal context. Johnson’s approach emphasizes the sexism and misogyny that has influenced how Christians see Mary, at the expense of considering the symbolic implications of Mary as a human being who freely chooses to be obedient and humble in her encounter with the Divine. Although Johnson offers a convincing proposal for Mary’s role in the contemporary Church, I contend that she neglects to acknowledge fully the significance of Mary as being simultaneously and inseparably both mother and virgin, a figure who freely chooses to be Theotokos (God-bearer). Johnson thereby silences the liberating implications that that title potentially has for all people. Interrogating the duality that Johnson, I also explore Mary in her historical context (as does Johnson). However, unlike Johnson, I argue that as Theotokos, Mary actively participates in the redemption of humanity that occurs in Jesus Christ and establishes in the economy of salvation a unique role for herself, one in which she serves God and humanity inseparably.

Mayoral Candidates Coding in Communication
Stephanie Anaya, Katherine Henley, Zayd Al-Marayati

Communication between candidates and their constituents can define the success of a campaign. This study analyzes the campaign literature of the mayoral primary candidates for the March 2013 General Election. All literature a candidate distributes must be filed with the Los Angeles City Ethics Commission. These documents contain a broad range of issues related to their campaigns and are often demographic-specific. Because communication during the campaign process has a large impact on voting behavior, candidates create and project their ideal self-image through content delivered in campaign literature (Trent and Friedenberg, 2008). By coding these primary source documents we can determine messaging trends and the target coalition demographics of the candidates. An analysis of how mayoral candidates tailor their messages, as well as the medium in which the literature is delivered (flyer, email doorknocker, etc.), we can explain what communication strategies contribute to the win or loss of a given candidate. Our methodology will consist of reviewing all registered campaign literature and coding it for past professional experience, leadership qualities, notable endorsements, suggested contributions candidate personality, issue preference, and tactics for campaign recruitment and contributions. By tracing trends in the preferred messaging strategies of each mayoral campaign, we can then compare these patterns with the outcome of the election. Content analysis of the literature lends explanatory value to the inevitable failure of three primary election campaigns. This research will also come in to play in predicting the campaign messaging strategies of the two run-off candidates in the May 2013 Mayoral Primary.
Single-ply biocomposite laminates were fabricated with two different woven fabrics and a bio-based resin using a wet layup technique at room temperature. A highly elastic, stockinette-weave bamboo fiber cloth and a thicker, inelastic plain weave bamboo cloth were both investigated. The elastic cloth was pre-strained at 25% intervals, ranging from 0-100% of its original length. E-Glass and S-Glass samples, two common fiberglass reinforcements, were also fabricated using the bio-resin as controls. It was hypothesized that the bamboo fibers would be weaker than the fiberglass samples, but that they would be more ductile. The ultimate strength and modulus of elasticity characteristics of the composites were obtained using the ASTM D3039/D3039M Standard Test Method for Tensile Properties of Polymer Matrix Composite Materials. The average percent elongation, toughness, and fiber volume ratio of the samples were determined in order to further understand the mechanical response of the composites. The plain weave fiber had a higher tensile strength (2.79 ksi) and modulus (156.49 ksi) as compared to the stockinette weave (strength of 2.62 ksi and modulus of 131.34 ksi). Neither of the biocomposites were equivalent to the E-Glass or S-Glass in terms of strength or modulus. However, at a pre-strain of 100%, the stockinette weave bamboo biocomposite did have a higher toughness (0.98 in·lbf/in³) than both the fiberglass (S-Glass 0.045 in·lbf/in³ and E-Glass 0.031 in·lbf/in³) and the plain weave bamboo (0.057 in·lbf/in³).

**Meeting Christ in Purgatory: the Role of Women**

Nina Garofalo

I focus this presentation on the thirteenth-century Christian church using a text composed by the Cistercian nun, Gertrude of Helfta, Herald of Divine Love. This text is an example of visionary literature; Gertrude of Helfta records her visions of nuns in the afterlife. It is important to note that men were also present in both the monastic life and Gertrude’s visions. These brothers worked to support the nuns by cooking and cleaning, so the nuns were able to spend their days in prayer. According to the text, monastic men and women demonstrate a specific understanding and belief in purgatory. In my reading I took up the question, “what is the relationship between Christ and souls in purgatory, as envisioned by thirteenth-century nuns?” It appears that the nuns believed their earthly bodies would remain with them in purgatory. I also found that the portrayal of Christ’s treatment of souls is significantly different for the souls of monastic women and those of monastic men. My research indicates two understandings of these thirteenth-century nuns. First, the nuns anticipated that their relationship with Christ in heaven would be more glorious than Christ’s relationship with the souls of their male counterparts. Secondly, the nuns interpreted their lives as having more rigorous religious responsibilities than the lives of monastic men, and therefore believed their lives as women were of greater importance.

**Mhóir Than a Team**

Hanna Bowens

What originally began as a project documenting my relatives on the small island in Ireland changed entirely when I learned about the island’s soccer club. The team, a symbol of the island’s pride and tradition for many years, now faces the loss of almost all of the young players. Recent restrictions on fishing enacted by the EU have made it nearly impossible for young men to make a living on the island and as a result, they must emigrate to find work. The purpose of my film and even possibly my entire trip abroad was now to share this unique story of a small island facing a universal challenge that is so prominent in our contemporary world. The experience of producing a film abroad allowed me to undergo incredible personal growth as well as develop my storytelling abilities, which is very important for a documentary filmmaker. I was able to develop relationships with the soccer players and residents of the island, which greatly broadened my knowledge of the human condition. Being so closely involved in the topic, I became sensitized to the issues of community, identity and cultural identity loss especially
among young people like myself. This experience was a challenge creatively but ultimately proved to be an eye-opening personal experience and has directed my interests towards exploring and documenting other social issues.

Mindfulness as a Buffer in the Face of Rejection: Promoting Resilience  
Kristen Trudo, Vanessa Urbina, Jordan Webb

The experience of social rejection is common, poignant, and painful for individuals; however, there is great variability in individual responses to rejection. The purpose of our study was to investigate whether a brief mindfulness manipulation would promote resilience and adaptive coping in the face of rejection, specifically for individuals with low self-esteem (who are most reactive to rejection). We hypothesized that mindfulness meditation would interfere with some of the harmful thought processes that low self-esteem individuals tend to engage in following rejection (such as negative rumination), thus serving as a buffer in the face of rejection. In order to investigate the effectiveness of mindfulness meditation as a buffer against rejection we conducted an experimental study in which we exposed participants to a mild laboratory rejection experience and measured whether individuals who engaged in mindfulness meditation felt less rejected in response to this rejection. Because individuals do not always accurately report their feelings following a rejection manipulation – for want of not being vulnerable – we chose to measure a variety of responses, including some responses that are more difficult to consciously control, such as physiological responses and nonverbal responses (namely facial expressions). Combining these different measures with self-report questionnaires allowed us to gain insight into whether the brief mindfulness manipulation decreases maladaptive responses to rejection and whether it is especially beneficial for low self-esteem individuals. In our talk we will describe the results from this study and the overall implications of our findings.

Mobile Rail™: Mobile Web Application  
Kyle Crowther

One of the major issues plaguing the public transportation infrastructure in the city of Los Angeles, California is the difficulty in understanding how to use it for new riders. New riders face an information design challenge in configuring their destinations with timetables. I will create a mobile interface, Mobile Rail™ mobile web application, to address this problem. This application will utilize clean design and researched wayfinding aesthetics—pioneered by social scientist Otto Neurath and information designer Paul Mijksenaar as well as others—in order to simplify the current information on the city's official website (www.metro.net) to the necessary. This will create greater ease in using the light rail system in Los Angeles, which will increase the number of users. The application will not only improve transportation, but it will also help reduce the environmental impact of current transportation methods by curtailing air pollution and, in the long term, develop economic opportunities by increasing the number of rails and jobs in relation to the new rail system. However, first and foremost, Mobile Rail™ will improve the lives of the people that ride these light rails everyday and the future riders to come.

Modeling, Predicting, and Mapping the risk of pre-harvest aflatoxin contamination in U.S. corn and peanuts due to climate change  
Sergio Gonzalez

Every year, hundreds of millions of dollars are lost due to aflatoxin contamination of U.S. corn and peanut crops. Aflatoxin is a potent human carcinogen produced by the Aspergillus flavus and Aspergillus parasiticus strains of fungi under certain environmental stress conditions such as drought and high temperatures. With anthropogenic climate change, agricultural areas under pre-harvest aflatoxin contamination risk is likely to change considerably. Predicting the areas that would be under optimal
Aflatoxin contamination due to these changing climatic factors would serve valuable information for U.S. corn and peanut growers to minimize their crop contamination risk. In this study, an aflatoxin risk index, a scale measuring the relative risk of aflatoxin contamination, is applied to both corn and peanuts under various climate change projections from a high resolution hydrologic model driven by a regional climate model. A pre-harvest aflatoxin risk index is mapped for Midwest corn and Southeast peanuts from 2013 to 2049, charting values from 0 to 99 over the map to quantify the relative contamination risk in an area. Changes in vulnerability in current corn and peanut farms in these areas are shown for typical growing seasons. The maps also indicate projected favorable areas to grow corn and peanuts, showing both spatial and temporal shifts under the future scenario. To adapt to these changes, U.S. corn and peanut farmers will therefore have to grow crops in new areas and/or change growing seasons to avoid a high probability of pre-harvest aflatoxin contamination due to climate change.

Music and Chant in the Divine Liturgy: An exploration of Liturgical Music in the Orthodox Tradition
Melanie Nguyen

In the Orthodox Church, liturgical music and chant are central components to the celebration of the Divine Liturgy. Regardless of national association and specific denomination, all churches within the Orthodox tradition incorporate some form of music and song into the liturgical service. Orthodox music serves as the congregation’s primary form of participation in the liturgical action and is therefore integral to the theology and worship within the Orthodox tradition, as well as to the individual believer’s experience of and connection to both the Divine Liturgy and the Orthodox faith as a whole. This research will focus its attention on a comprehensive analysis of the role liturgical music plays in the Orthodox tradition. By exploring the fundamental connection between liturgy and music; looking at the two types of liturgical music, psalmody and hymnody; and lastly, focusing on the koinonicon, or communion hymn, we can conclude that liturgical music both reflects and shapes theological understanding within the Orthodox community.

Nest Behavior Testing in Captive Spinus pinus
Jordan Rudack

Nest building is a critical component in reproduction for numerous avian species. In pine siskins it has been observed that females are the primarily responsible for nest construction. In this study we investigate nesting behavior in captive pine siskins in order to examine the relationship between nesting behavior and changes in reproductive physiology, and to evaluate a simple method for quantifying this behavior in captivity. Captive male and female pine siskins were paired and monitored as they came into breeding condition from March to July of 2012. To periodically evaluate nesting behavior, a standard amount of nesting material was provided to each pair and behavior was monitored via video recording for ten minutes following presentation of nesting material. The amount of time spent within one body length of the material as well number of strands that were picked up in the beak was then quantified. Because eggs were most commonly laid in the food cups provided to the pairs, the number of strands of nesting material that were placed inside these cups during the testing period was also counted. Intensity of nesting behavior was then compared to changes in reproductive physiology, including defeathering of the brood patch and increases in circulating levels of very low density lipoprotein (VLDL). Overall this method shows promise for quantifying nesting behavior in captive pine siskins.

NGO Influence in Sex and Labor Trafficking of South Asia
Elizabeth Naai

Human trafficking has been a pervasive problem in South Asia over the last 20 years and many nongovernmental organizations (NGOs) have begun to combat the problem. Of local, regional, or international origin, many of these organizations focus on a particular type of exploitation, such as labor
trafficking or sex trafficking, or a particular population, such as women and children. This research project asks how NGOs are defining and addressing trafficking and slavery in proportion to the problem in two particular countries, Bangladesh and Sri Lanka. I am interested in analyzing the influence of local versus international NGOs in these countries and the ways that this affects anti-trafficking efforts. Both countries are in the same region, and both are source countries, and smaller destination countries, providing a field for comparison; the labor trade is prevalent in Bangladesh, while the sex trade is more prevalent in Sri Lanka. Sex trade oriented NGOs are predominately international, while labor trade NGOs are local due to grassroots campaigns, funding, and populations served. I am collecting data through an online analysis of organization websites, research reports on human trafficking, and an email survey of anti-trafficking NGOs in each country. These materials will allow me to assess each organization's goals, philosophy, activities, funding, and location, and determine the relative importance of international and local NGOs in shaping each country's anti-trafficking agenda.

**Nodule Formation and Exopolysaccharide Production of Burkholderia tuberum Mutants**

Salma Soltani

Burkholderia tuberum is a beta-proteobacterium that engages in symbiotic relationships with legume plants, such as Phaseolus vulgaris (black bean), through nodulation. Nodules are special root structures that allow for bacterial fixation of atmospheric nitrogen. Nitrogen is one of the most critical macronutrients for plant growth. Nitrogen fixation is important for converting dinitrogen into ammonia, a form that is usable by plants. We are interested in characterizing Burkholderia tuberum mutants for their nodule formation and exopolysaccharide production so that we can better understand the mechanisms by which this bacterium interacts with plants. The first step to generate mutants was to introduce the transposon vector, pRL27, from Escherichia coli into B. tuberum by conjugation. B. tuberum transposon mutants were selected using media with rifampin, which selects for B. tuberum, and kanamycin, which selects for the presence of the transposon. Two hundred transposon–tagged mutants were then screened for alterations in motility and exopolysaccharide production, both processes implicated in bacterial-host interactions. When compared to the wild type, exopolysaccharide mutant SS6 absorbed the dyes and was extremely dry on yeast mannitol agar containing congo red and coomassie brilliant blue dyes, in comparison to wild type, which has a mucoidy appearance. Molecular methods were used to determine that the mutated gene encodes an S-adenosylmethionine-dependant methyltransferase. This indicates that methylation is involved in the regulation of exopolysaccharide production in B. tuberum. A nodulation assay will be conducted to screen for mutants' inefficient nodules and the significance of the nodules in reference to growth of the plant.

**Non-Steroidal Anti-Inflammatory Drugs and Their Ability to Inhibit Aggregation of IAPP**

Nicole Pepe, Korina Sandoval, Alex Santiago, In Wang

The aggregation of Islet Amyloid Polypeptide (IAPP, amylin), a 37-amino acid polypeptide, has been thought to correlate with the loss of pancreatic B-islet cells that are necessary for the secretion of insulin. These effects are thought to contribute to Type II Diabetes, and for this reason, the inhibition of the aggregate proteins can be vital for the discovery of potential therapeutic drugs. With the use of Thioflavin T binding assays, six non-steroidal anti-inflammatory drugs (NSAIDs) were tested and analyzed for their ability to prevent the aggregation of amyloidogenic IAPP in order to evaluate their viability for possible therapeutic uses. Preliminary results from these tests indicate that the six NSAIDs tested are not likely to be useful compounds for inhibiting IAPP aggregation. Further research will be done by attaching these NSAIDs to inositol and glucose to perform similar tests and determine their effectiveness to inhibit the aggregation of IAPP.

**OJ Simpson Effect: How Celebrity Reputation Impacts Eyewitness Credibility**

Allison Block, Jennifer Brooks, Aisling Cassidy, Andrew Earle, Nora Mansfield
On Identity Statements
Caroline Liviakis

The identity statements this paper will focus on are: (a=a) and (a=b). Although intuitively the statement (a=a) seems preposterous to doubt, there are several conceptions which point against this intuition. I begin by distinguishing the difference between ‘similarity’ and ‘identity’. The concept of ‘similarity’ assumes a comparison between two, distinct particulars while identity centers on the complete undivided togetherness of a being. I first define proper names as purely individuated entities that denote individuated and singular referents but in no manner connote; proper names are brought into a realm of reality but also serve as a reflection of reality. Secondly, I establish the most fundamental attribute of identity statements: the fact they consist only of particulars. Thirdly, I demonstrate that all statements have frames of reference, which I define as an established time/location set by the speaker’s intention. Since statements paint ‘scenic pictures’ with subjects as individual entities with their individuated proper names, there can only be one use of each proper name per statement, as any repetition of a proper name would commit the fallacy of having a substance in the same place/same time, twice. I also reply to two objections; the first which argues for self-identity as a property and the second which proposes one of the (a)s in an identity statement (in the form of ‘a=a’) to be part of a metalanguage. On these grounds, identity can no longer be stated in the form of (a=a) but rather is reflected in the mere standing of (a).

ONE
Karrena Gordon

A Furthering of Awareness of Past and Present Human Atrocities Through Art, Emotion, and Information. When responsibility can be passed to others, action or inaction becomes acceptable. Authority goes unquestioned. You are asked to always ponder the significance of mental and physical stagnation. To discover and share the effects of inaction (or action in the form of inaction) that humans have on others exponentially is my purpose for this project. Through 11 months of primary and secondary research in Germany and in the U.S. I gained insight to the emotions and humanity behind the Holocaust to create art that communicates emotion and my message. My message is that each human affects “never again philosophy” (the principle attempting to ensure that something like the Holocaust will never happen again) both literally, and, on a broader scope in everyday life when action or inaction is taken. I displayed my findings in a solo art exhibition in the Thomas P. Kelly Student Art Gallery. Pieces supporting my theme which were on display in my exhibition include abstract images, quotes, prints of pre-WWII New York Times Articles, anti-semitic cartoons, and installation pieces including a trampoline, a toilet, a video, and 2 pieces utilizing water. My conclusion is that all of

Previous studies have investigated the powerful influence of celebrity endorsers, although little is known about the impact of reputation on eyewitness testimony. Here, we consider the "O.J. Simpson Effect", a theory that, all other things being equal, having a positive reputation will cause a celebrity eyewitness to be seen as more credible than a non-celebrity giving the exact same testimony. Participants (n = 47) were randomly assigned to conditions where they viewed evidence suggesting a suspect’s guilt in a fictitious robbery from one of three celebrity eyewitnesses valenced for low, high, and neutral reputation, then reported their impressions of the witness. Relative to the control, mean ratings of eyewitness credibility, F(2, 32) = 9.491, MSE = 12.021, p = .001, ηp2 = .372, trustworthiness, F(2, 32) = 11.177, MSE = 12.491, p = .001, ηp2 = .411, and intelligence, F(2, 32) = 7.274, MSE = 6.679, p = .002, ηp2 = .313 were significantly lower in the low reputation condition. In the high reputation condition, mean likeability, F(2, 32) = 20.495, MSE = 29.363, p < .001, ηp2= .562, and attractiveness ratings, F(2, 32) = 11.326, MSE = 15.253, p < .001, ηp2 = .414, were significantly greater than those in the control. Our study is the first to show that reputation of an eyewitness may affect juror impressions on factors relevant to the perceived value of the testimony.
humanity is connected through a web—a web of decisions—and that even choosing to not act is an act itself—where responsibility must be taken by every individual for the result of the whole. Please visit: http://onebykarrenagordon.blogspot.com/ to see photographs of the exhibition.

Optimal Currency Areas and The Future of the Euro
Anastasia Oulianova

Is the Euro doomed? Or is the Euro key for the growth in the European Union? Based on optimal currency area models, this paper investigates what degree of monetary integration and economic convergence is necessary for a viable monetary union in the Eurozone. It focuses on the economic policies of the Eurozone countries, the convergence criteria, and the entry and exit options for a monetary union to determine whether the European Union can be considered an optimal currency area. The recent financial and debt crises in the Eurozone offer an opportunity to assess the sustainability of the common currency based on the strength of its institutional, economic policy, and other foundations. We investigate the role of convergence for the functioning of the Stability Growth Pact mechanisms in an experimental public bads game.

P

Portable and inexpensive quantification of VOCs: A method using a solid absorbent, solvent extraction and quantification by GC-MS
Erica Carrasco, Daniel Ruiz

Volatile organic compounds (VOCs) play a significant role in atmospheric composition and function by contributing to ozone and secondary aerosol formation, therefore detection of those trace gases is desired. The purpose of this study is to test and characterize an economical and effective method for the identification and quantification of VOCs. The proposed method uses Hayesep-Q cartridges to sample ambient air followed by analysis via Gas Chromatography coupled with Mass Spectrometry (GC-MS). A 10 L Tedlar bag was filled with N2 gas and varying amounts of a standard mixture (a-pinene, methyl salicylate, 1,3,5-trimethyl benzene, linalool, dodecane, and aromadendrene) to replicate field measurements. A wide range (8.9-142.5 ng) of the standards were sampled to determine the level of saturation of each analyte on the cartridge. Storage Tests were also conducted to determine the best conditions to store the Hayesep-Q cartridges before analysis. It was determined that covering the cartridge at room temperature provided the lowest and most consistent loss. This method was employed in the field at CalNex Los Angeles, a large-scale campaign, in 2010. Ambient concentrations determined with the Hayesep-Q cartridges agreed well with measurements made by colleagues from NOAA who used a different sampling and quantification method (slope= 0.985; R2= 0.674).

Posterizing Identity: The Power of Graphic Design
Matthew Yamane

Graphic design can shape an individual’s identity, influencing how the individual perceives themselves in relation to society, and how society perceives the individual. Historically, graphic design has also extended the notion of identity past the individual to a community, culture, and nation, having both positive and negative ramifications. Using the poster as a design medium, and focusing on its role in American, Japanese, and Hawaiian culture from the 1920s to postwar 1950s, this project aims to give insight into how graphic design can impact the identity of a larger whole through the self exploration of my own identity as an individual. While language, and thus typography, may not be fully understood when placed in a cross-cultured context, a graphic image through the use of layout, color, and visual imagery has the ability to span these boundaries. Similarly, while ethnicities and cultures may not be fully understood by those of differing backgrounds, the feeling of identifying with ones own ethnicity and culture is universal. By researching historic usages of graphic design that have created identities
around a specific ethnic group or culture, I plan to reinterpret these strategies and apply them to the three ethnic cultures that I identify with: American, Japanese and contemporary Hawaiian culture.

**Principle into Practice: A multi-case analysis of organizational structure and workplace culture**  
Angelica Cadiente

When it comes to management and human resources principles, the most meaningful and effective way to understand generally accepted concepts is through actual practice. While classroom theories are rooted in truth, the application of these ideas is what develops and equips the future workforce for real-world, professional situations. By taking a very action-oriented as well as research-oriented approach, this inductive analysis will examine three distinct co-curricular on-campus work experiences that I have been involved with over the course of four years (as part of the management staff of the Los Angeles Loyolan, Mane Entertainment and the Honors Program’s Attic Salt Interdisciplinary Journal). In addition to that, I will analyze and compare the insights gained from working in the Human Resources department at an off-campus Fortune 500 company (DIRECTV). Using qualitative field research as well as integrating classroom-taught theories, this discussion puts learned principles to the test by putting them into practice. The results will provide salient, real-world takeaways, themes and best practices regarding organizational structure, workplace culture, process development and employee engagement—all of which are key objectives in the study of maximizing the potential of human capital and embodying effective management.

**Programming of a Low-cost, Educational Robot to Simulate a Manufacturing Environment**  
J. Llanos, Xavier Morales, Jasmine Panosian

The science of robotics is becoming increasingly important in today’s age. Robotics have been implemented into various processes such as manufacturing and large-scale product development. As a result, it is important to understand and start introducing aspects of reprogrammable functions and automation at an earlier stage in academia in order to remain competitive. The focus of this study is to use an easy to use programming language with a cost efficient educational robot. By developing simple, instructional commands and prompts for the robot’s various sensors and capabilities, the immediate relevance of robotics shall be demonstrated. Focusing on infrared-sensors, a line-tracking program has been developed as well as manipulation of its drive functions. In conclusion, this study will reveal a way in which early stages of academia, like middle school or high schools, can explore the growing applications of robots which are reprogrammable and multi-functional devices.

**Programming of Robot for Manufacturing Applications**  
Dominick Lentine, Marc Papakyriakou, Austin Scheiber

Robotic systems have become essential in many areas spanning from various practical applications to hazardous situations. In the recent past, the use of robots has increased dramatically in the manufacturing world to where it has become a field in its own. As this industry continues to grow, more skilled engineers are required to build, program, and operate these robots. By replacing human workers, robots have become an integral part of the manufacturing process, making it more safe and efficient. The objective of this research is to develop more advanced programs that help the Fanuc CERT 200iC robot simulate manufacturing tasks such as pick-and-place, painting, welding, and inspection using the vision system.
Statistics has become an integral part of mathematics and science K–12 education. To meet the increased demands for statistics education, teachers need to be trained in the subject area and curricular materials need to be developed. Project-SET is an NSF funded project that aims to do just this. To complement the overall project goals, a multifaceted undergraduate research project was developed. We analyzed 28 current statistics articles, and extracted topics that students appeared to have difficulty understanding. A list of twenty topics was created and the team, composed of statisticians, mathematicians, mathematics educators, statistics educators, and high school teachers, chose to focus on developing materials for sampling variability and regression. Based upon discussions about sampling variability, it was determined that there was much discrepancy in the way different team members thought about the topic. To explore this further, a national online survey was emailed to all mathematics and statistics faculty at 12 randomly selected universities across the country. We received 114 responses (response rate of 15%). The survey included background information questions and two multiple choice questions that asked respondents their definition of sampling variability and their application of sampling variability to a specific statistical problem. Through this survey, we were looking to see the distinctions in the way of thinking about sampling variability between the individuals involved with mathematics and those involved with statistics. Results from the survey indicated that differences do occur between the manner mathematicians think about sampling variability in contrast to statisticians. These survey results will be presented and discussed.

Punk’s Not Dead in the Writing of Cherrie Moraga
Jessica Baden

Punk as an aesthetic value calls for rebellion against hegemonic ideas. Punks work in opposition and are resistant to the status quo. Cherrie Moraga’s book Loving in the War Years: Lo Que Nunca Pasó Por Sus Labios is an important text in the Chicana feminist canon. Moraga’s writing questions rigid structures like ethnicity, gender and sexuality. Her writing is a form of what Chicana scholar Chela Sandoval calls oppositional and differential consciousness. Sandoval argues that U.S. Third World Feminism, the type of feminism that Moraga is using, is a form of differential consciousness that aims at a decolonized end. Moraga does this by claiming her own subjectivity and naming it herself. Similarly, Alice Bag’s autobiography, Violence Girl, does the same. As the lead singer of the early Los Angeles punk band, The Bags, Bag questions and claims her own subjectivity as a Chicana feminist punk. Reading the two works, Violence Girl and Loving in the War Years together demonstrates the connection between Chicana feminism and punk. Both are about rebellion and claiming your own agency.

Reclaiming the Urban Alley
Theadora Trindle

Urban alleyways are neglected urban forms that commonly enable illegal and illicit activities such as prostitution, garbage dumping, and drug use—reoccurrences that perpetuate the alley’s image as a relatively useless space that scars rather than enhances a city’s perceivable landscape. However, cities in the United States such as Santa Cruz, Seattle, and Los Angeles are beginning to reengage the alley and redefine its potential as an agent of community development. This project investigated the impact that alley revitalization has on community development by looking at a recent alley activation endeavor in the Hollywood neighborhood of Los Angeles, CA: the East Cahuenga Pedestrian Alley. In order to carry out the study, systematic behavioral observations were undertaken in the focal alley and in a nearby control alley. Findings include the discovery that 91.2% of recorded users were observed in the focal alley and that walking and dining were the two most frequently-observed activities in the focal alley.
Working and driving were the predominant activities in the control alley. Additionally, preliminary findings brought to light that the optimization of the alley’s atmosphere might rely heavily on programming that attracts pedestrians, such as outdoor dining and street markets.

Reconceiving ‘American Progress’ in the 21st Century
Matthew Baum

The economic, political, and social forces that shape American society are driven by corporate interests. We as citizens are merely the guinea pigs of ‘American Progress,’ rather than its active participants. This takeover is happening under the false premise that ‘Corporations are people,’ a postwar notion that created the largest economic growth in our history and manufactured the marketplace and consumer as we now know it. The unchecked growth of our cycles of production and consumption, deregulation of industrial practices within the environment, the confusion within the notion of ‘Corporations are people,’ and the concentration of wealth and power within an elite all threaten the autonomy of the American citizen. We need to reconceive the idea of a good society in the 21st century and find a creative path towards it. My project utilizes a strategic layout of infographs, numerical data, and text to help draw connections between these issues and identify the ways that we can move towards a more sustainable and representative system.

Recording Seasonal Trends of BVOC’s from Native and Non-Native Vegetation
Andrew Carranco

Biogenic volatile organic compound (BVOC) emissions play an integral role in air quality. BVOC leaf content is the focus of this study as researchers have suggested a correlation between BVOC leaf content and emissions. Previous work showed high BVOC content in non-native plants and low BVOC content in native species collected in the summer. Then in the fall, there was an increase in the BVOC content of native plants. It is unclear, however, if this variation is due to the difference in season or the difference in plant species sampled. Identifying plant species that emit large amounts of BVOCs is important to investigate as they affect trends of increased pollution in a localized area. The purpose of this research is to better quantify seasonal trends of BVOC content in specific native and non-native plants. From this research we hope to prove the trends of increased BVOC content is correlated to the plant themselves (non-native/native) as opposed to a seasonal change and change in amount of BVOCs. This information can aid in further efforts to better understand increased pollution over time. In this study, two native and two non-native plants were periodically collected in the surrounding Loyola Marymount University neighborhood over ~1.5 years. BVOCs were extracted from one gram of each dried plant sample with cyclohexane. The filtered extracts were then analyzed alongside a standard solution with the Gas Chromatography Mass Spectrometry (GC-MS). Preliminary results show an increase in BVOC concentrations (specifically α-pinene, aromadendrene, p-cymene, and α-humulene) in the non-native plants from one year to the next. Over the same period of time the native plants showed the opposite trend.

Recruitment and Selection Within Sustainable Organizations: Determining Person Organization Fit
Jonathan Rojas

The purpose of this research study is to analyze the recruitment and selection practices of multiple business entities that are considered to be sustainable organizations. My focus is to determine how these practices help the organization to operate so that its business interests and the interests of the environment and society intersect. A sustainable organization is one that creates profit for its shareholders while protecting the environment and improving the lives of those with whom it interacts. Sustainable organizations want their employees to practice these sustainability efforts in their own lives so that they create new products, services, generate new ideas and continue the cycle of sustainable
efforts, and thus help the company to succeed financially and prosper as a sustainable organization. I specifically examine how each of the organizations studied uses the HR concept of person organization fit, how well the individual’s characteristics match the broader culture, values, and norms of the firm, to recruit and select their employees. In this research study I will conduct a literature review in order to identify current recruiting and selection practices that help organizations select employees with a high degree of fit and I conduct interviews with the HR recruitment and selection staff of sustainable organizations. I will conduct a content analysis of the interview data and determine how these sustainable organizations recruit and hire employees for their organization and how this helps them to continue to be successful as sustainable organizations.

Running Ghost
Tracy Ip

*Running Ghost* is a narrative film that encapsulates the internal struggles of biculturalism. Hong Kong has had a turbulent history of different ruling governments, politically as well as ideological. Its citizens are a product of a hybridization of Eastern and Western culture- never fully belonging to each but living in a duality. While visiting the city, I investigated the emotional effects of living in a dual culture and culminated my research into a short film. Based upon a series of interviews with Chinese immigrants of my parents’ generation who long for the city of their childhood and are unable to adapt to the now bustling metropolis. Hong Kong has favored new skyscrapers to historical relics. My film is a cultural portrayal of an ever-changing multicultural city, capturing the sights, foods, and dingy noodle shops that characterize Hong Kong. It is a sensory depiction of Hong Kong accessible to any audience member. It follows the story of a young man, who returns home to honor the memory of his Grandmother. However, he has trouble reconciling the memories of his past and living in a new modernized Hong Kong. He is the personification of the struggles of immigrants living in limbo between two cultures. This film sheds light on an important subject that affects many but is rarely addressed-biculturalism. As such, I hope the film will provide insight to those who may be foreign to this concept as well as be relatable to those who are familiar.

Rwandan restorative justice: Reflections on a service abroad experience
Adrien Jarvis

When entire ethnic groups are systematically and purposefully murdered, reconciliation between the survivors and the perpetrators is hard to imagine. The only way to move forward as a nation is, however, to find ways to mend ties between ethnic groups and to rebuild. In the 18 years since their genocide, Rwanda has worked hard to achieve reconciliation, largely with home-grown solutions and an emphasis on community. Research for this project is a combination of experience during the Alternative Break trip to Rwanda during Winter Break 2012, where members got an in-depth, first-hand look at the methods Rwanda has developed, and post-trip investigation. The multiple components of reconciliation efforts in Rwanda include education, the prison system, and village-centric efforts like the gacaca and the one-cow-per-family initiative. They emphasize restorative justice rather than the retributive justice that is more common in the Western world. There are problems, particularly with regard to the sincerity of apologies from the perpetrators and to repercussions of moving the guilty through the justice system too quickly. Nonetheless, Rwanda is justifiably proud of the strides they have made to foster community and to help perpetrators and victims live together in harmony.
Screening of a Designed Combinatorial Peptide Library for Inhibitors of IAPP Aggregation
Paola Cota, Christina Cunha

Islet amyloid polypeptide (IAPP) is 37-amino acids in length and is secreted from the pancreas in conjunction with insulin. Similar to other amyloid proteins, IAPP has the ability to misfold and aggregate forming large plaques in the pancreas. It is closely associated with Type II diabetes. IAPP aggregates have been found in the pancreas of over 90% of individuals afflicted with Type II diabetes. Our research involves finding small peptides that can inhibit the aggregation of IAPP in an attempt to slow the progression or eliminate completely the disease. A protein library was constructed targeted to bind to the aggregation-prone region of IAPP, but simultaneously block additional IAPP sequences from binding. This library has a theoretical size of over 663,000 peptides. The peptide library has been screened using an IAPP-EGFP screen developed in our laboratory. This involves the fusing of the genes for IAPP and enhanced green fluorescent protein (EGFP). In E. coli the IAPP-EGFP fusion protein does not fluoresce. This lack of fluorescence is due to the aggregation of the IAPP which prevents proper folding and fluorescing of the fused EGFP. When an inhibitor of amyloid aggregation is present, the fused EGFP can fold properly and fluoresce green. Using this method, we have screened and identified several peptides with IAPP inhibitory potential. Recently we have synthesized and sent for sequencing a successful library with over 80% positive different sequences.

Seasonal patterns of affiliative behavior in the pine siskin (Spinus pinus)
Bruce Edley, Okensama La-Anyane

Many animals form social bonds with conspecifics, including mates, relatives, and other group members. For a wide variety of bird species, the formation of a social bond with a mate, called a pair bond, is particularly important for reproduction. In this study, we investigate the relationship between affiliative behaviors associated with pair bonding and seasonal changes in reproductive physiology in pine siskins (Spinus pinus). These small social finches form socially monogamous pairs during the breeding season, but it is unknown whether these pairs are maintained across multiple breeding seasons. In this study, males and females were randomly paired in the winter. The pairs were then monitored for 1 year to quantify affiliative behavior as birds initiated and later terminated breeding. During the study, pairs were videotaped weekly. Video footage of their affiliative interactions were scored in ten-minute intervals by recording the amount of time each pair spent within 1 body-length of each other and the frequency of bill-touching. Bill-touching is a behavior in which two pine siskins touch bill tips, and it is regarded as a component of reproductive behavior. Our preliminary results indicated that there is considerable variation in the quantity of affiliative behaviors exhibited by pairs during the breeding season, and that affiliative behaviors are maintained outside of breeding, in at least some pairs. The results from this study will provide insight into the extent to which affiliative behavior among pairs is tied to breeding, and the potential for these birds to maintain pair bonds across breeding seasons.

Seeds of Change: Comparisons of Ballona Wetlands Seed Banks from (2009-2013)
Emily Ferrell, Ranielle Rodriguez

Seed bank surveys help to assess the biodiversity of the Ballona Wetlands and indicate well-functioning ecological and hydrological dynamics of the site. Our research evaluates long-term monitoring of vegetation of the Ballona Wetlands from the past four years, utilizing Santa Monica Bay Restoration Commission’s data. Ten soil cores were collected during late fall (Nov-Dec) from each of 9 vegetation transects. The transects representing low, marsh, and high marsh habitat types varied in exact location across the four years while 4 channel bank habitats remained consistent. This allowed for spatial and temporal analyses of seedling densities by generalized habitat type and by specific 100m channel bank sections. Cores were grown out in the LMU greenhouse. Germinated seedlings were counted and
recorded by species and/or nativity to California every 2-3 weeks for 3.5 months and densities were calculated by number of germinated seedlings/m². Preliminary data suggests that the highest relative densities of viable native to non-native seeds occur in channel banks, with the ratio decreasing as elevation ascends from low to high marsh. While the low and mid marsh habitats are consistently native-dominated, the high marsh is consistently dominated by non-native seeds. Domination by specific species appears to be consistent in low marsh (*Jaumea carnosa*) and mid marsh (*Salicornia pacifica*) habitats, probably due to the inundation and salinity levels experienced at these elevations.

**Seeing is Knowing: Using Graphic Facilitation for Self-Growth and Discovery**
Sara Martinez

Graphic facilitation is a refreshing approach to business meetings and other collaborative projects in which a trained professional—through the use of symbol, visual metaphor, and color—creates a mural that summarizes the ideas shared by the group. This synthesis of image and word allows the group to intuitively generate creative solutions while keeping sight of, or even uncovering, the core truths pertaining to the project at hand. Graphic facilitation has proven itself as an effective way to help groups solve seemingly complex problems. Building upon the successful methods of graphic facilitation, I aim to stretch its application beyond the conference room by applying these methods at the individual level. In that way, individuals can visually record their thoughts and daily routines, which then gives way to uncovering hidden solutions that were latent within their unorganized thoughts. I will do so through the creation of an activity book geared toward preteens and young adults that introduces the readers to visual tools that will help promote goal-setting, problem solving and introspection as a means for future success and self-discovery. The activity book will consist of guided doodling pages, interactive diagrams, illustrated quizzes, and infographics meant to help the readers visualize their thoughts on how they view themselves and the world around them. Ultimately, I hope this book will serve as a tangible tool for growth, or more so a companion that will impart the readers with simple tools and nuggets of wisdom that they can use to solve future problems.

**Self Completeness in Alternative Theories of Gravity**
Maximiliano Isi

Black holes are the densest and most compact objects known in the universe, and their physical properties serve to define a number of limiting measurable quantities. For example, anything interior to the event horizon is inaccessible to the outside world, so this radius effectively "shields" the universe from the physics inside. If the black hole is microscopic and the event horizon is of the scale of its Compton wavelength, then the universe below this minimum distance is also shielded from observation. This effect, known as "gravitational self-completeness" has profound ramifications for quantum gravity research. In this project, we study self-completeness in alternative theories of gravity and assess the compatibility of such theories with this idea. Limits on the minimum size of black holes in each framework are derived, and new constraints are placed on free parameters of each theory. Theories analyzed include: wrapped extra dimensions, Randall-Sundrum model, Generalized Uncertainty Principle theories, Ungravity, Yukawa potentials and others. Our novel results thus help to rule out certain aspects of these alternative theories of gravity.

**Shifting Emphasis in the Fashion Industry**
Meg Finney

“Shifting Emphasis in the Fashion Industry” looks at the process surrounding the production of diverse, inclusive body ideals, specifically within the organization All Walks Beyond the Catwalk (“All Walks”). All Walks is a nonprofit in London, England actively working with London Fashion Week, Parliament, and British Universities to increase diversity (more ages, races, sizes) within the fashion industry. The study is
grounded in an understanding of the history of western fashion from the 20th to 21st century, with special attention paid to the industry’s use of mass media and the effects fashion media has on the public. I utilized an ethnographic methodology to analyze All Walks through a four-week mentorship with cofounder Caryn Franklin, fashion commentator and former host of BBC’s The Clothes Show.

Smart talent management: on the powerful amalgamation of talent management and knowledge management
Mursal Abedi, Ana Cosic, Amaan Kerawala, Raquel Sena

To effectively address challenges of our increasingly global workplace, our conceptual research presents a valuable fusion of two important yet heretofore rather disparate theoretical areas: knowledge management and talent management. The mixture of these two conceptual orientations into a theoretical hybrid, which we call “smart talent management,” merges the strengths of each approach, yet combined also are able to surmount the limitations of each. We will examine the strengths and limitations of each individual approach and then discuss the important advantages of our merged conceptual model for directing future research and practice in human resource management within our global economy.

So Check Out This Story…: Strategies of Representing Social Justice Conflicts
Guadalupe Astorga, Matthew Campos, Christopher Ingram, Rubyann Park

This panel will present the results of focused exploration into the strategies of representation for four social justice conflicts. “The School of the Americas,” by Matthew Campos, follows the history of the Western Hemisphere Institute for Security and Cooperation, providing a first person report of the yearly protest against the school in an effort to offer solutions to those in support of the school’s closure. “Social Inequality and Its Fatal Consequences,” by Guadalupe Astorga Contreras, discusses how inequality and corruption—two major causes of the recent rise of Mexican drug cartels—have generated fear in the minds of Mexico’s citizens. “The Forgotten Massacre,” by Rubyann Park, explores the reasons the No Gun Ri Massacre has become a forgotten conflict of the Korean War with an emphasis on the racial discrimination that contributed to this event. Finally, “The Mexican Mafia” by Chris Ingram, investigates the Mexican Mafia’s influential power on the streets of Southern California and the repercussions of gang-related activity on modern day society. Connecting these presentations will be an emphasis on the power of language to create subjects and the corresponding responsibility of writers seeking to understand and represent conflicts grounded in issues of social justice. The speakers will discuss their personal investment in the conflicts they have chosen to explore, as well as the trends in traditional representations of their subjects and the new insights they have gained through blending primary and secondary research strategies. These discoveries include the factors which prevent these conflicts from coming out into the open—whether it is the political relationships of the international governments involved, the scarcity of information available on certain groups considered ‘deviant,’ or racial discrimination leading to inadequate media coverage and a continued silencing of the victims.

Social Media
Shana Aframian

Online social media such as Facebook and Twitter are dramatically changing the ways in which companies and their customers interact. As social media becomes a more common form of communication and interaction between companies, their brands, and consumers, these companies are challenged with developing new approaches to interactions and engagement regarding products and services offered. However, research regarding the nature of social media-driven, brand-consumer interactions is only now developing. To investigate this, the authors conduct a mixed-method study to
analyze the role of social media among younger consumers (“digital natives”) in their interactions with specific brands. A social media diary documenting consumer-brand interactions and degrees of individual satisfaction and engagement was administered to 137 LMU undergraduate and graduate students over a six-week period. The findings suggest that brand-consumer interactions over time can be characterized by five primary dimensions: 1) entertainment, 2) engagement, 3) timeliness and relevance of information, 4) product information, and 5) incentives and promotions. These results are important to guiding future brand-customer interaction research as well as to informing managers about the nature of consumers’ desired interactions with brands on social media platforms.

**Social Media and Campaign Financing: The 2013 Los Angeles Municipal Primary**  
Adam Byrne

Over the years, there has been much speculation over the role of money in political campaigns and how it can hinder, if not thwart, the democratic process in Los Angeles. At the same time, a lot of attention has also been given to recent technological advancements and the potential for new forms of media to enhance democratic practices. This project analyzes the 2013 Los Angeles municipal primary from the perspectives of social media and campaign financing, looking most closely at the mayoral race. By conducting a content analysis of what the candidates are communicating via Facebook and Twitter, I measure and compare their strategies with social media as a means to help them campaign. Of particular interest is the reformed campaign finance laws recently instated by the City of Los Angeles that increased contribution limits; by using data from the Los Angeles Ethics Commission on candidate fundraising levels, I will look to see if there is any connection between how much money the candidates have raised and the levels and ways in which the candidates use social media. I hypothesize that raising a large amount of money is closely connected to a high and advanced level of social media usage. Methodologically, I will code all of the candidates’ social media profiles by looking at how many people are following them, how often they post, and what types of posts they produce within a four week period leading up to election day. This work contributes to the small amount of literature dedicated to social media usage in local politics and is unique in that no one has yet studied the impacts of Los Angeles’ recent campaign finance changes.

**Species Versus Citizens: Evaluating the Constitutionality of the ESA**  
Lucy Olson

The Endangered Species Act (ESA) was passed in 1973 in an effort to protect critically endangered and threatened species from extinction. The ESA specifically prevents federal agencies from authorizing, through action or funding, anything that jeopardizes the existence of an endangered species anywhere in the world. My research will focus specifically on whether or not the ESA infringes on the property rights of private citizens. Many species make their homes on private land, and the nature of the ESA puts the burdens of regulations on landowners. Furthermore, the government cannot take or condemn private land without duly compensating the owner of that land. This leads to a question of whether or not the Act constitutes a Fifth Amendment “taking,” and I will focus my thesis on this question specifically. While most everybody wants to protect endangered species, the public’s comprehension of the ESA is too general and lacks the understanding that the ramifications of the Act may not be ultimately beneficial to both private citizens and endangered species. It is important to fully understand the ESA and its effects on citizens. While conservation is of the utmost importance, there are undoubtedly other aspects, such as the burdens on private citizens, which must be considered so everyone can work to preserve the environment. If the ESA is a bad piece of legislation, it must be amended in order to distribute the widest benefit. I am looking at the Act from a legal perspective and examine whether or not the ESA, as applied, constitutes a Fifth Amendment taking. Furthermore, much of the existing research on the subject of the ESA and private property is outdated, as there are many articles that were published in the mid-90s or early 2000s that are now between ten and 20 years old. However, the law evolves and I want to know what the last five to ten years of takings law says, and
what implications the Fifth Amendment has on the ESA. My research will update existing literature regarding the Fifth Amendment takings implications of the ESA and I will attempt to say definitively whether or not the ESA, as applied constitutes a Fifth Amendment taking. My project will be partially a traditional research paper and partially a policy analysis and report. My research into the ESA will contribute to my analysis of whether or not the Act constitutes a Fifth Amendment taking. I intend to achieve this by looking at particular legal cases over the course of the last decade, specifically those from the U.S. Court of Federal Claims and the U.S. Court of Appeals. I will look at some cases that were decided in favor of the U.S. and some that were decided in favor of private citizens. I will use these cases to decide whether or not the ESA, as applied, is unconstitutional. I am confident that this study will provide new insights into an old topic and lead me to a conclusion on a much-researched subject that still asks wholly original questions.

Study of Hydraulic Jump Position in an Open Channel Flume
Bladimir Gonzalez, Philip Mateo, Kevin Ramirez, Carrington Witte

A Palmer-Bowlus flume is a hydraulic structure that is used to measure open channel flow in circular pipes. The flume is often installed to monitor flow rate in sewers that convey domestic and industrial wastewater. It consists of a trapezoidal cross section with a small step that produces critical flow conditions at the flume’s constriction. The flume produces a specific flow vs. head relationship, which can be measured with flow meter sensors. However, high flows and steep invert slopes can generate a hydraulic jump, which may create excessive turbulence and affect the reliability of the sensors. Hydraulic tests were conducted at several flow rates in an 8-inch Palmer-Bowlus flume installed at the end of a 28-ft, 8-inch diameter PVC pipe set at varying steep invert slopes. The hydraulic jump was characterized through its position (Xj) in the pipe upstream of the flume. Regression analyses indicated that the slope is the predominant parameter that influences the hydraulic jump’s position. The flow rate also affects the hydraulic jump position, but it has a lesser impact than the slope. This work may help improve invert slope design for these flumes and reliability of the flow sensors. This improvement can result in greater flow measurement accuracy, which is essential for industries and agencies that conduct wastewater monitoring.

Supplemental Needs Trusts: Drafting and Funding Strategies for the Care of Special Needs Individuals
Alison Clarizio

Families of special needs individuals face overwhelming obstacles in establishing special needs trusts (SNT’s) for the benefit and long-term care of their disabled family members. Welfare programs include stringent income and net asset requirements set below the U.S. poverty line, while tax law, relevant to funding of SNT’s, is constantly fluctuating with the political climate. Given that one in twenty-six American families reports raising a disabled child, the complexity of these issues has been recognized in the public discourse. This study reviews the use of SNT’s in maximizing public benefits that provide food, housing, and healthcare to special needs individuals while making available supplementary funds that support a higher quality of life. Through legal research which analyzes the laws governing Supplemental Security Income, Medicaid, and other welfare benefit programs at the local, state, and federal levels, this study examines the position of SNT’s at a cross-section between public welfare regulations and tax law. An examination of various articles from financial and tax journals provides further insight into funding strategies for SNT’s along with relevant tax consequences, finding that the most effective strategy for funding and disbursement varies on a case by case basis. While families with estate tax concerns should consider inter vivos planning, other families ought to consider funding through life insurance and retirement accounts in order to maximize tax savings. Through careful planning and compromise, families can take advantage of the opportunities provided by SNT’s to ensure a higher quality of life for their special needs family member.
Callie Aaker

Wetlands offer unparalleled ecosystem services that maintain stable water levels, improve the quality of water that eventually enters the ocean, and provide many natural benefits. The Ballona Wetlands, the only remaining wetlands in Los Angeles, still offer these benefits, even though they are greatly reduced in size due to regional development. In fact, the Ballona Watershed is 80% urbanized, making it one of the most urbanized in the nation. Consequently, the environmental benefits continue to become increasingly important as more polluted water is expelled and not infiltrated from the watershed into the wetlands and Santa Monica Bay. In reaction to this increased storm flow and reduced water quality due to urbanization, many municipalities have mandated the implementation of Best Management Practices. This research project applies a hydrologic model to the Ballona Watershed to simulate extreme precipitation scenarios and resulting flood response. To implement the Best Management Practices, various model parameters are modified, such as ground perviousness and infiltration rates. Resulting impacts on storm flow, examined throughout the watershed and at the outlet adjoining the Ballona Wetlands, are analyzed and compared to the Best Management Practices that should be implemented to improve water quality and encourage precipitation infiltration with low impact developments. Ultimately, increased infiltration is likely to benefit the local environment and community by reducing the amount of polluted water entering the Ballona Wetlands and Santa Monica Bay.

Synthesis of G-quadruplex Macrocycle
Alexis Foster, Bryant Hammershaimb, Andrew Isho, Spencer Robertson

With the recent interest in the anticancer potential of G-quadruplexes, the need exists for understanding the self-assembly of G-quadruplexes and G-quartets. Several N9-modified guanine derivatives were synthesized to examine their self-assembling properties. N9-(3,5-di-tert-butylbenzyl)-guanine, N9-(3,5-bis(tert-butyldimethylsiloxy) benzyl)-guanine, N9-(3,5-bis(pent-4-enyloxy) benzyl)-guanine, N9-(3,5-bis(hex-5-enyloxy)benzyl)-guanine, N9-(3,5-bis(hept-6-enyloxy)benzyl)-guanine, and N9-(3,5-bis(oct-7-enyloxy)benzyl)-guanine were synthesized in good yields via coupling reactions involving 2-N-acetylguanine and benzyl bromide derivatives followed by amide deprotection. The self-assembling properties of these derivatives to form G-quartets were studied through the addition of various metals and determined by NMR. These guanine derivatives were found to assemble into an organized quadruplex structures. G-quartet macrocycle formation from cation-templated ring-closing methathesis is currently under investigation. NMR evidence suggests these G-quadruplexes successfully formed macrocycles, albeit in small yields. Definitive characterization is still underway.

System H: a logic of opposition
J Runia

I will present a Hegelian symbolic logic. But not one that checks arguments for validity and soundness; rather, this is a philosophical logic that provides a method by which to analyze the relationship one idea has to the next and the gradual development of new ideas. Secondly, this logic is thoroughly Hegelian, i.e. it is rooted in the logic of the Hegelian dialectic. The end of this logic is to diagram the progression of ideas through the historical process, thereby providing more historical and analytic clarity in future analyses. This essay will assume a general familiarity with Hegel’s ideas; however, it will re-introduce several Hegelian terms and concepts in order for the work within to maintain intelligibility. Having briefly presented Hegel’s thought, I will symbolize Hegel’s dialectic, focusing critically upon its shortcomings. Having, as a consequence of such scrutiny, presented the flaws of Hegel’s system, I will
improve these flaws and present a preliminary Hegelian System that will both diagram dialectical processes and also incorporate essential qualitative data. Having presented System-H, I will conclude my work with speculation concerning the development of this system further such that it could capture more of the world processes than merely those that are dialectical in nature. This project will provide increased awareness and cogency when examining the past and can be used by nearly all social scientists and historians.

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Taken For Granted: Domestic Workers’ Fight for Labor Rights in California
Paige Pardo

The proliferation of domestic work in Los Angeles has made California the largest employer of domestic labor in the nation. Domestic workers are usually women, minorities, and immigrants (both documented and undocumented) who perform household chores, serve as nannies, or care for the elderly. Currently, the women who make up the underground economy of domestic work do not have the same rights and protection as workers in other labor sectors. The purpose of this study is to examine how domestic workers in Los Angeles are organizing to improve their working conditions. Specifically, I investigate the tactics, strategies, and goals of the local domestic worker rights movement in their campaign to pass the California Domestic Workers’ Bill of Rights. The data utilized to analyze this campaign is drawn from interviews with L.A. domestic worker organizers and activists. My findings present an assessment of the growth of the domestic worker movement in Los Angeles and provide a critical analysis of the challenges the movement faces.

Temperature-Influenced Termination of House Finch Breeding
Tauras Vilgalys

House finches breed over a wide geographic range covering much of the United States and Mexico. Historically, this nesting has shown broad synchrony with house finches breeding from March to July. In a number of other bird species, there have been trends of earlier breeding in response to changing environmental conditions over recent decades. Using over five hundred nest records, this study undertakes a detailed examination of the historical timing of breeding of house finches in California, examining patterns of reproductive timing from 1882 to 2012. Earliest, average, and latest lay date were calculated for each decade for which at least ten records were available (average 48). No significant trend was observed in the onset of nesting across the study period (p > 0.10). However, the breeding season has been terminating significantly earlier (by ~20 days) in more recent years (p = 0.0185, R = -0.785). Across the study period, this advance in the timing of termination correlates with warmer summer temperatures (p = 0.063, R = -0.759). Furthermore, we present results of an experimental study suggesting that warmer summer temperatures directly stimulate earlier termination of breeding, specifically the onset of molting, in this species. As house finches may lay multiple clutches in a year, this early termination may reduce the total reproductive output.

Temporal state sequences for immutable objects: a new mechanism for object oriented programming
Jasmine Dahilig

In a series of talks on the applications of atomic time in parallel computing, programming language designer Rich Hickey proposes that computing performance will remain at a plateau until programmers are able to use multithreaded programming to fully take advantage of multi-core processors. He further claims that this will be impossible to achieve with object-oriented programming, due to the presence of mutable state which presumes an idyllic single thread. However, object-oriented programming is the most widely used programming paradigm today. This research examines the difficulties in reconciling pure functional programming with the object-oriented programming paradigm by examining approaches taken in existing languages. The analysis aims to identify the areas in which these languages fail and in which they succeed, according to Hickey’s specifications, and use this analysis to propose a
Testing methods of Aβ42 deaggregation in Drosophila melanogaster
James Clevenger, Andrew Heslin, Anthony Wavrin

The extensive genetic tools available in Drosophila melanogaster make it an attractive system for studying human disease. In mammals, Alzheimer’s syndrome is correlated with the appearance of aggregating Aβ42 polypeptide in the brain. Another lab at Loyola Marymount University has isolated different molecules that prevent aggregation in vitro. We are working to test these molecules in vivo in D. melanogaster. The Alzheimer’s model in D. melanogaster compares survival of flies carrying two alternative artificial genes. These genes encode for an aggregating polypeptide (Aβ42) and a non-aggregating control polypeptide (Aβ40). The Aβ42 flies have reduced life spans and activity levels when compared to the two control lines, both those expressing Aβ40 and a transmembrane form of the protein, C99. As a first step to demonstrating effects of the fore-mentioned lab’s molecules in vivo, we have attempted to demonstrate the Aβ42 effects in D. melanogaster that were reported in other labs. In our hands, the Aβ42 -expressing flies showed only a slight shortening of life span compared to C99 control lines. Both lines began to die much earlier and more rapidly than previously reported. Recently, we have adjusted our experimental parameters. In this presentation, we report on the new experimental conditions, which extend the survival of both the experimental and controls. Under these conditions, the “Alzheimer’s flies,” those expressing the Aβ42 polypeptide, show a significant decrease in survival. We are now in the process of testing methods of Aβ42 deaggregation in our model.

The characterization of Yml, a putative anaerobic electron acceptor of the mitochondrial IMS oxidative protein folding pathway
Robert McMickle

Prokaryotes have both aerobic and anaerobic electron acceptors for the oxidative folding of proteins in the periplasm. The mitochondrial intermembrane space (IMS) has an analogous pathway with the oxidoreductase Mia40 and sulfhydryl oxidase Erv1. The aerobic electron acceptors include oxygen and cytochrome c, but anaerobic electron acceptors have not been identified. Here we show the characterization of one such putative anaerobic electron acceptor, Yml. Yml localizes to the IMS and assembles with Osm1 and Erv1 in a ternary complex; this was shown by immunoprecipitation experiments and blue native gel analysis. Yml knock-out yeast is viable however do not grow well under anaerobic conditions in the presence of oxidative (hydrogen peroxide) or reductive (DTT-Dithiothreitol) stress. This is in agreement with literature suggesting that Yml protein possesses a thioredoxin-like domain. Studies performed by Neal et al demonstrate that recombinant Erv1 can transfer electrons directly to Osm1 in the oxidation of a substrate protein such as Tim13. Thus; Yml is a new scaffold protein that could act as a terminal electron acceptor in the IMS pathway.

The Contemporary Role of the Catholic Pastor
Alexander Garoutte

Since the Second Vatican Council (1962-1968), the state of the Catholic Parish in the United States has moved through a period of significant change. As the number of clergy members has decreased, lay ministers have become crucial in the work and ministry of parish life. This has directly led to alterations in parish structures that bring lay people into positions previously only occupied by ordained ministers and changed the role of pastors. This study’s main purpose is to explore the results of these changes in today’s Catholic parish. It briefly analyzes the way parish life has structurally changed through the last 50 years and what the fruits are today in regard to the responsibilities and work of the pastor. It paints
The Ecstatic Other in the Cults of Dionysus and Cybele
Christopher Gipson

Ritual ecstasy was a central element of ritual worship of the cult of Dionysus in Athens and of Cybele in Rome. Through a process of appropriation, Athenians accepted and adapted the ecstatic rites of Dionysus to benefit the city. Ecstasy is a Greek word that describes the state of literally “standing outside of oneself”. By examining how Greeks and Romans represented ecstatic ritual practices as ‘other’ to their own dominant ritual practices, we can learn about systems of representation and ‘otherness’. During the course of my research, I survey anthropological and theoretical works that explore the process of stereotyping and the creation of the ‘Other’. The 'Other' could be understood as that which is not in the dominant or 'mainstream'. Edward Said's "Orientalism" (1978) was fundamental in my understanding of the process of 'otherness' and the dynamics of biased representations. The tensions between the ecstatic ritual practices and dominant ritual practices were not particular to Athenian ritual, but also appear in Roman contexts. I explore the construction of stereotypical representations of madness and ecstasy in ancient Greece and Rome by examining ancient sources: literary texts, e.g. Euripides’ The Bacchae, Catullus 63, which will provide a literary representation of madness and ecstasy, and ethnographical/historiographical texts e.g. Herodotus’ Histories, in order to survey how Greeks viewed the ‘Other’. I examine the relationship between representations of ecstatic ritual practices and dominant ritual practices, and how these representations were constructed.

The Effect of Hydrogen Charging on Fracture Toughness of 4340-Steel
Andrew Dominguez, Juan Jose Villanueva

A study was conducted on the effect of hydrogen charging on fracture toughness in cadmium coated 4340 steel samples. 4340 steel is cadmium coated to give it an excellent resistance to corrosion in most conditions, especially in marine and alkaline environments. The electroplating of cadmium to steel diffuses hydrogen into the steel microstructure causing embrittlement. Hydrogen charging is currently detected in steels by very slow and complex methods. Our group of researchers at LMU discovered that a fast high strain rate method (Charpy Impact) can detect hydrogen charging in steel. The objective of this work is to generate data of hydrogen charged steels by using fracture toughness testing. A mathematical model will be created which will relate fracture toughness testing with Charpy Impact values. If a strong correlation was observed, then the simple method of Charpy Impact testing will be also used in predicting fracture toughness of steels. This will be a very significant result in the materials engineering community. Steel plates will be Electro Discharge Machined (EDM) into compact tension fracture toughness bars. The samples will be divided into four groups; as received, as-received with cadmium coating of 0.05mils, tempered, and tempered with cadmium coating of 0.05mils. Tempering will be at 354°C, 468°C, and 621°C. Each of these samples will then be fracture toughness tested on the MTS fracture mechanics system at LMU. Selected fractured samples will be studied by a Scanning Electron Microscopy (SEM) to analyze their failure mode. The expected results are to detect a notable difference between the uncharged and hydrogen charged samples and to correlate the data to the Charpy Impact data generated in the past.
The Effect of Hydrogen Charging on the Ductile-Brittle Transition Temperatures of 4340-Steel

Andrew Dominguez, Jorge Ibarra, Maximilian Miller, Michael Miller, Fred Orantes, Jason Rodriguez, Lucious Wilson, Lauren Young

The goal of this project is to find an alternate, efficient method of detecting hydrogen absorbed by steel, as the present method of detecting hydrogen is extremely difficult and time consuming. The alternate method introduced in this work is by using Charpy Impact testing, which is a simple and fast method. Many steel components and structures, including ships, behave in a ductile fashion at room temperature and above but behave in a completely brittle fashion near ice temperature and below. This is what many people think was the reason for the Titanic ship’s catastrophic failure in the early 1900’s. The ductile to brittle transition temperature is a very important property that scientists and engineers like to determine for different steels or for steels that have been cadmium-coated with a certain percentage of hydrogen inside them. Accordingly, the authors wanted to determine if the simple Charpy Impact method would be able to detect the ductile to brittle transition temperature of the 44340 steel with and without the hydrogen-charged cadmium coating. The steel Charpy Impact samples were divided into three sets; as received, tempered and tempered with cadmium coating of a thickness of .5 millimeter. The as-received samples were Martensite heat-treated plates, which were tempered at 1000°C (1832°F), the plates were then machined by Electro-Discharge Machining (EDM) into Charpy Impact bars. The steel samples (both coated and uncoated with cadmium) were tempered at both 1100°C (2012°F), which has a target strength of 1000 MPa (145 KSI), and 494°C (921°F), which has a target strength of 1723 MPa (250 KSI). Cadmium coating induces hydrogen into the sample. The Charpy Impact Testing was performed at -196°C / -321°F (liquid nitrogen), -78.5°C / -109°C (dry ice), -5.5°C / 22°F (saline ice solution), 22°C / 72°F (room temperature) and 100°C / 212°F (boiling water). This technique proved to successfully differentiate between hydrogen charged and uncharged samples.

The Effectiveness of Vibration Platform Therapy on Increasing Hamstring Flexibility

Timothy Kwong, Jasmin Ramirez

Having relaxed and flexible muscles is a highly accepted way to prevent muscular injuries. Heat is a commonly used modality to achieve this; however recent studies suggest that the use of vibration platforms can also be used to increase muscular flexibility. The purpose of this research study was to identify the effectiveness of vibration platforms to increase flexibility. Flexibility was measured through a sit and reach test before and after a period of vibration therapy. This study was conducted at the university human performance lab for the sit and reach test while the vibration plate therapy that had its own separate lab close by. Volunteer test subjects male and female (n=14) were college students, between the ages of 18-25 and had a variety of activity levels. Subjects were placed into randomized control trials of a vibration plate or control group. Subjects were first instructed to perform a sit and reach test with both legs extended and one hand on top of another. After their flexibility was recorded those within the tested group had either the vibration plate applied or was placed into the control group. Subjects in the control group were asked to sit and rest for fifteen minutes. After the fifteen minutes of testing the subjects performed a second sit and reach test. Flexibility for vibration plate subjects was also recorded post treatment. The difference in flexibility was recorded. Results are preliminary nevertheless the results of this study can suggest whether the use of vibration plate therapy could be a reliable modality for immediately increasing hamstring flexibility. From the results an increase of 2.58 cm was seen after the use of vibration plate technology in hamstring flexibility. A 100% confidence interval was used and produced a t-test value of 0.34, which is a p-value of 0.66. There were no statistical significant findings (p-value = 0.05). However, clinically this can be somewhat significant as it shows that it is slightly better than applying no modality at all in order to improve hamstring flexibility.
The Effects of Hydrogen Charging on Charpy Impact of 4340 steel
Jaina Alcisto, Andrew Dominguez, Joe Foyos, Jonathan Guerra, Michael Miller, Marc Papakyriakou

Landing gears of aircraft whether civilian or military are usually coated with Cadmium (Cd) to protect the steel from corrosion and oxidation. Coatings whether Cd or others like Chromium (Cr) are made by electro-plating methods. In these methods due to the process of electro-plating hydrogen diffuses into the steel. Many times this hydrogen causes catastrophic failure by a process that is called hydrogen embrittlement. The detection of hydrogen in steels used to take testing for months and then for weeks. Although the methods have been refined still current methods of testing for hydrogen charging are very slow and time consuming. Our goal was to determine if hydrogen charging can be detected through the use of Charpy Impact testing, a much faster and simpler process than the current bending methods for detecting hydrogen charging. Steel plates were Electro Discharge Machined (EDM) into ninety-six 4340 steel Charpy Impact samples and ninety-six tensile bars. These were heat treated at 900C to austenite and then rapidly quenched in water to form martensite. The samples were then tempered at eight different target strengths/target temperatures (145, 160, 170, 180, 190, 205, 220, to 250KSI) (1100,1013,956,898,840,754,667,494 degrees Celsius). After a tedious process of grinding and machining v-notches, the samples were divided into four groups. One group was kept at a baseline and the other three groups were sent to Alcoa (Fasteners) Inc. in Torrance to be cadmium coated. The three groups were each coated with three coating thicknesses (2, 3 and 5mils) which charged the samples with ascending hydrogen levels. The samples were Charpy Impact tested and the data was tabulated and compared to the baseline group of uncharged samples of the same material. The results of these tests indicated that Charpy Impact testing was able to quantitatively detect hydrogen charging. The proposal that we are going to submit to the National Science Foundation expands significantly on this work. We are planning to change the heat treatments and we are planning to do different experiments including the detection of the ductile to brittle transition temperatures of different strengths using the Charpy impact method and the hydrogen charging by cadmium coating. Also, we are planning to test hydrogen charged cadmium coated fracture toughness samples and correlate this data to the Charpy impact behavior. Quantitative optical microscopy will also be performed.

The Effects of Intersectionality Dissonance on Psychological Well-Being
Julia Singleton

As humans we possess personal identities, or idiosyncratic values and beliefs that we hold, and social identities, or identities associated with the groups to which we belong. Previous research has shown that having multiple identities can aid mental health and well being (LaFromboise et al., 1993); however work on social identity has shown that when our identities conflict with one another there can be harmful mental health consequences (Stirratt, Meyer, Oullette, & Gara, 2008). The current work builds on the previous research by examining not what happens when social identities conflict, but what happens when one’s personal identities conflict with one’s social identities, a question that has been largely ignored in the identity literature. Participants, all LMU undergraduates, will complete a survey measure assessing both their social identity as an LMU student and also their adherence to a personal value, social dominance or endorsement of hierarchies, which conflicts with the University or group values. The outcomes are negative health effects as measured through self-esteem, anxiety, and satisfaction with life. Data collection is about to begin, and although we do not yet have results, we predict that students whose personal and social identities conflict (i.e., they strongly identity with the Jesuit University and simultaneously value hierarchy) and are therefore in a state of psychological dissonance will report significantly worse outcomes than the others.
The Effects of Low-level Laser Therapy on the Power Production of the Lower Extremities in a Vertical Jump Test after 12 minutes of Sub-maximal Running on a Treadmill
Ian Halderman

Low-level laser therapy (LLLT) has been shown to have wound healing, therapeutic and performance enhancing qualities. More research is needed in order to expand our knowledge of this therapeutic modality. The objective of our study is to look at the effects of low-level laser therapy on the power production of the lower extremities after a sub-maximal running effort. Our study is a randomized single blind placebo-controlled crossover trial. Our study was performed in the Human Performance Lab located on the campus of Loyola Marymount University. The target population for this study is college aged participants 18 years of age or older. This study used a voluntary sample. The independent variable of this study is the application of the LLLT. Participants were tested on two separate days, separated by a span of one week. It was randomly selected on which day subjects were to receive LLLT or the placebo treatment. The Vertec, a commonly used device consisting of a steel frame and movable vanes that swing out when touched, was used in order to obtain vertical jump height (VJH). The critical dependent variable in this study was VJH. A conclusion will be drawn as to whether or not LLLT significantly affects a person’s ability to vertical jump after a sub-maximal running effort.

The Effects of Orientalism and Othering on Twitter During the Great North East Japan Earthquake
Aili Watanabe

Twitter is a social media platform that has been credited with helping to further enable a global public sphere by encouraging intercultural communication. It is commonly seen as a tool that allows a constant flow of information across borders, resulting in a sharing of cultures and global cooperation. However, this study challenges these idealistic misconceptions by addressing Twitter’s shortcomings during the tragedy of the 2011 Great North East Japan Earthquake. As information about the earthquake traveled overseas, Japan received an overwhelming amount of sympathy from the international community. In contrast, however, Japanese earthquake victims received an underwhelming amount of donations compared to those who were impacted by Hurricane Katrina and the Haitian earthquake. This indicates a level of slacktivism, where users revealed a lack of motivation to turn their virtual support into physical action, but this theory alone does not provide sufficient explanation of why slacktivism disproportionately affected the Japanese people. Therefore, this study conducts a textual analysis of a sample of archived tweets, online blogs and news sources that are analyzed through a theoretical lens influenced by Orientalism and “othering” theory. Although Twitter has the potential to create a global public sphere, it also gives voice to racists and others who use tragedies such as the 2011 earthquake to spotlight their own nationalistic and hate-filled diatribes. In addition, unique cultural traits in Japan, such as the emphasis on the collectivist spirit of “gaman,” inadvertently functioned to alienate non-Japanese users. Thus, it is important to address these issues to improve intercultural communication online, and in so doing, create the preconditions for a more fully-realized global compassion.

The Effects of Vitamins on the Aggregation of Islet Amyloid Polypeptide
Ana Lucia Fuentes, Kathleen Hennessy, Jacob Pascual

Islet Amyloid Polypeptide is a 37-amino acid chain secreted by the pancreas in conjunction with insulin. It is an aggregate that appears to play a direct role in the onset of type 2 diabetes. By preventing this aggregation it may be possible to restrict the occurrence of this disease. In attempt to prevent aggregation, several compounds have been utilized including nicotine and cotinine with mixed results. Seeing as vitamins have a positive influence on the body it was hypothesized that they would also be an effective inhibitor of the aggregation of IAPP. Using Thioflavin T assays we were able to collect data that displayed the efficiency of vitamins inhibiting aggregation. By utilizing vitamins to inhibit IAPP aggregation, it may be possible to delay and eventually terminate the effects of diabetes II.
The Global Contract
Antoinette Bedros

The Social Contract theory is a theory of justice which aims to explain and provide legitimacy for the authority of the state over the individual. This theory justifies the sacrifice of personal freedoms to a sovereign for the constitution of a commonwealth in order for individuals to thrive. Yet this theory also has broader applications—the contractarian theory of justice may also serve as a model for global governance. This thesis is directed toward examining whether or not such a theory can be applied to the international level. Specifically, the central questions of this thesis are: Can we achieve a just, global society through the creation of a global contract? If so, would such a formulation be successful or are current international institutions the best we can hope for? To answer these questions, this thesis is broken down into three sections. The first is comprised of primary source research on political theory and philosophy which will explicate the fundamental elements of contract theory. The next provides an interdisciplinary discussion of major problems of global governance, which is grounded in sociological, ethical, and political thought. The third and final section contains my theoretical argument for a global contract. I argue that the nature of the international system is, in fact, consistent with a contractarian model of justice and provide an argument for how such a global governing body should be organized in order to be effective.

The Habituation of Greek Political Movements through Social Media
Emily Frederick

Former Greek Prime Minister Kostas Karamanlis did an excellent job of concealing the economic disparity that Greece had fallen into after the introduction of the Euro. After the 2004 Olympics the country nearly doubled its budget and it became overly apparent that the country’s spending was out of control. Fiscal monitoring started the following year and citizens felt betrayed and disillusioned as they struggled to accept their lack of influence in spending decisions. By 2009, new Prime Minister George Papandreou requested foreign aid and began instituting austerity measures as Greece continued to spiral into a debt crisis. This resulted in a schism between citizens and parliament and ultimately active rebellion. In this paper, I analyze how citizens used social media to organize and publicize their rebellions, much like the organizers of Occupy Wall Street and the Arab Spring. I suggest that the instinctual use of social media in 2009 was not novel but was in fact the result of conditioning that stretched back over a decade. My analysis suggests that public discourse increased dramatically as the country’s technological infrastructure modernized. What were first local responses to isolate incidents, over the years coalesced into a common cause within a newly networked Greek public sphere. The 2009 austerity riots may have appeared spontaneous, but through the analysis of technology’s role in key events in recent Greek history, we begin to uncover and understand a much more complex story. Exhibitions of a newly vital, Greek public sphere formulated through the familiarization of communication technology showcase the strength and mobilizing capabilities of social media.

The Impact of Diet and Exercise on Bone Mineral Density in College Female Athletes
Lindsey Williams

Exercise and dietary patterns are important markers of health and can have a large impact on one’s bone density. Literature has suggested that adequate protein intake contributes to overall bone health and bone mineral density (BMD). The main aim of this study was to observe and compare trends among exercise, protein intake, and BMD among 45 college female athletes, particularly, cross country runners and dancers. Block 2005 Food Frequency Questionnaires and Aerobic Center’s Physical Activity Questionnaires were administered and used to evaluate participants’ dietary habits, exercise levels, and energy availabilities. Energy availability in kcals/day was calculated by subtracting energy expenditure from daily calorie intake. A Hologic Explorer Dual-Energy X-Ray Absorptiometer was used to measure
participants’ BMDs at the spine and hip. Mean protein intake per kilogram of body weight among the runners measured to be 1.61±0.34 g/kg/day while the dancers mean intake was 0.96±0.47 g/kg/day (p<0.01). Energy availabilities for the runners was 934.85±469.14 kcal/day while the dancers had 749.71±651.68 kcal/day. The mean BMD at the spine for runners was 0.94±0.07 g/cm² and 1.06±0.09 g/cm² for the dancers (p<0.01). Mean BMD at the femoral neck for runners was 0.88±0.06 g/cm² and 0.97±0.12 g/cm² for the dancers (p<0.05). Although runners exhibited a better diet with greater energy availability and protein intake as compared to the dancers, they had significantly lower BMDs than the dancers. This contradicts the notion that protein has a significant impact on BMD and may suggest that the type of exercise one partakes in plays a greater role in bone health.

The Intersection of Fashion & Social Change: An Ideological Critique
Natalie Chandler

This paper will be a close analysis of a photograph featured in 2012 Winter issue of the art and culture magazine Purple, a magazine founded by Olivier Zahm in 1992 as a rejection of and alternative to the standard glamour magazines of the 1980’s. The photograph is part of a series by an American photographer Marlene Marino and features a Latina holding a political poster from the Chicana artist, Yolanda Lopez. Marino’s series raises the issue of immigration to the readers of Purple, an audience that might otherwise not take interest in the subject. The exploration of issues surrounding immigration and class, is a profound departure for Purple embodies, with its typical focus on leisure, parties, sex, fashion, and contemporary art. Purple enjoys 300,000 unique visitors to its website per month. Thus, a rhetorical of Marino’s image is extremely important. I will offer an ideological reading of the image to argue that this artifact unconsciously reinforces and challenges hegemony simultaneously. In addition I will apply a semiotics approach, articulation theory, and critical race theory. Using these three theoretical lenses will allow for a semiotic reading of the image as sign, an explication of the relationships between the artifact’s elements, and a critical examination of race and power. My goal is to discover what this photograph suggests about immigration ideologies, class, cultural stereotypes, and the redefining of the immigrant persona in the public sphere. The effects of this rhetoric impacts women, immigrants, and specifically Mexican Americans, all target subjects in today’s political and rhetorical climate.

The Lab Atlas Project: Implementing Technology in the Anatomy Lab Using Constructivist Techniques
Joseph Derian

Technology in undergraduate classrooms is an expanding area of research. In order to test the efficacy of a novel pedagogy, the purpose was to investigate the effects of a technology-heavy, semester-long constructivist project in an undergraduate Human Anatomy and Physiology lab. Constructivism is a school of pedagogy which holds that proper learning is done by “constructing” metaphysical models of information in the mind. The project included the group use of iPads and digital microscopes to create photographs of prepared and student-dissected specimens in order to individually label them and post them to the “MyLMUConnect” Blackboard site where the photos were graded and critiqued by the teaching assistant. Each student was required to compile all of their pictures into a comprehensive digital “atlas” of anatomy using a free internet book publishing website for a final turn-in. The study compared final exam score (FES) and final class grade (FCG) of students the semester before the lab atlas project was implemented (n=76) to the FES and FCG of students in the following two semesters that included the lab atlas project (n=60, n=38 respectively). A three-way ANOVA showed significant improvement in the mean FES (p=0.02) between the pre and post intervention cohorts. Qualitative data from student questionnaires examined the beneficial processes and concerns of students regarding this project. The project appears to favorably improve student learning. Further research could benefit from a larger sample, or a project that is either completely group-oriented or completely individual to enhance uniformity.
The Microstructure/Toughness of Pre-alloyed HDH and BE Ti-6Al-4V Materials Processed to Consistent Form
Andrew Dominguez, Jorge Ibarra, Maximilian Miller, Michael Miller, Fred Orantes, Jason Rodriguez, Lucius Wilson, Lauren Young

Ti-6Al-4V is the most frequently used Titanium alloy in Aerospace industry as well as in other industries like sports goods. This alloy is very expensive and the reason is mostly due to its brittleness. Forming this alloy by extrusion, forging, hot rolling, stretching, or other means is very expensive and time consuming. To overcome the problem of brittleness and to render the alloy to be more ductile and formable, Scientists and Engineers resorted to different solutions. One of these solutions is to combine two methods (powder method and a casting method followed by forging). The new method shapes the alloy by powder methods into an aggregate which is then forged into a bar. The mechanical properties resulting from the new combined method indicated that they are equal or superior to the mechanical properties resulting from either method. It is also more cost-effective. At LMU the undergraduate researchers studied the microstructure of the different steps of the new combined process. They correlated the microstructure of each forming step until the final product to the mechanical properties determined. This will help Boeing Engineers and Scientists to determine the optimized microstructure with respect to the optimized mechanical properties. Bars of the titanium alloy Ti-6Al-4V were processed by a new method combining the forging process and the powder metallurgy process. Pre-alloyed hydride-dehydride (HDH) and the proper blend of elemental powders (BE) were implemented to process the alloy that is studied in this research project. The billet material was received in the form of forged bars with diameters of 1, 1 3/8, 2 inches. The bars were cut by Electro Discharge Machining (EDM) in different orientations, longitudinal and radial at the surface and across the center. The samples were ground by silicon carbide grits (180, 240, 320, 400, 500, 600, 700, and 800) and then polished by diamond paste of different concentrations. The samples were then chemically etched and the microstructure was determined and correlated to the mechanical properties provided by Boeing, St. Louis, Missouri Corporation.

The Modal Collapse in Spinoza’s Metaphysical System
Danielle Shank

The purpose of this paper is to establish the modal collapse within Baruch Spinoza’s metaphysical system, as constructed in his Ethics. Spinoza’s presentation of a strictly deterministic account of reality not only eliminates free will, but also collapses the difference between the possible and the necessary. I demonstrate this by quantifying Spinoza’s system into a series of modal logic propositions, and proving that propositions that allow for possibility outside the realm of actuality produce contradictions.

The Modern Multinational Corporation as a State
Paulina Slagter

In this era of globalization, multinational corporations have wielded a disproportionate level of power by infringing upon states’ economic autonomy in determining the business environment of the regions which they work within. If you consider some of the most egregious human rights abuses that have occurred in the past two hundred years, you can find a strong economic incentive for a state to engage in human rights violations of the most horrific proportions. Not only does a strong economic motivation create an environment for human rights abuses, it also provides the financial resources for sustained state-directed violations of the human rights of its citizens. A direct link between multinational presence and human rights abuses has been well documented, but any mechanism for ensuring accountability among multinational corporations has not yet been determined. The criminal justice system relies on determining a clear agent that is responsible as well as a clear jurisdiction. The problem in dealing with corporate involvement in human rights abuses is that it involves a non-state, non-individual, acting in a transnational setting which complicates the element of jurisdiction. The question this study aims to address is: What is the relationship between corporate persons in multinational jurisdictions to human
Both rights abuses? Political theorists have been silent on the role of the modern corporation in the public sphere, a dilemma this research aims to reconcile. This study utilizes the current status of the Alien Tort Statute as a paradigmatic case study of the parallels between political theory, legal scholarship and business ethics and the dilemmas that arise when they are not analyzed in conjunction. The goal is to provide a clear argument on the role, responsibility and identity of the corporation through an interpretive analysis of political theory that may finally reconcile the contradictions that have prohibited any international legal body from addressing corporate involvement in human rights abuses.

The Next Best Fit: The Effect of Cultural Compatibility on Task Performance
Natasha Grabowski, John Liggins

Cultural mismatch theory presupposes that academic performance depends upon a match (or mismatch) between an individual’s and university’s values. Experimental research by Stephens, et al. (2012) found lowered academic performance when there was a conflict between individualistic university values (i.e., an emphasis on individual achievement) and collective personal values (i.e., an emphasis on the well-being of the group), but did not find a significant effect on academic performance when there was a conflict between collective university values and individualistic personal values. One reason for this inconsistency may be related to the nature of the task participants completed; it was an individual task which may have interfered with the prime for collective university values. To test this hypothesis, we examined the effects of cultural mismatch when the task performed is a group task and thus reflective of collective values. Undergraduates completed a measure of personal values, were primed to think their university valued individualism or collectivism, and then performed a group-based problem-solving task. Results are forthcoming but it is predicted that students with collective values, regardless of how they perceive university values, will perform well on the collectivistic task. For students with individualistic values, however, a cultural match or mismatch with the university's values should affect performance on the collectivistic task. Specifically, individualistic students should perform significantly worse on the task when the university values collectivism over individualism. Results have implications for helping students with varying value systems transition to college and to succeed in contexts where conflicting values may appear.

The Prevalence of Antibiotic Resistant Bacteria (ARB) in waters of the Lower Ballona Creek Watershed, Los Angeles County, California
Salman Ahmed, Danielle Lee, Alec Nielson, Helena Olivieri, Stephanie Zamora

The Prevalence of Antibiotic Resistant Bacteria (ARB) in waters of the Lower Ballona Creek Watershed, Los Angeles County, California. Antibiotic resistant bacteria (ARB) are considered to be biological pollutants, posing risks to public health and threats to the environment. These bacteria have been reported from some coastal wetlands in Southern California, although little is known about the extent of their distribution and prevalence in these coastal systems, or their potential threats to human health and ecosystems. The goal of this study was to characterize the presence and relative abundance of antibiotic resistant bacteria in the highly urbanized waters of the lower Ballona Creek Watershed in Los Angeles County. Initial screenings for ARB were conducted in the Del Rey Lagoon, and subsequently from flood and ebb tidal flows within the Ballona Wetlands, in wetland sediments, and in freshwater runoff from Ballona Creek. The presence and abundance of ARB were determined through replicate plating onto antibiotic infused agar at clinical concentrations. Insensitivities were confirmed using Kirby-Bauer disc diffusion testing. Bacteria displaying insensitivities to five or more antibiotics were identified biochemically using the Vitek 2 Compact system, or molecularly by PCR through 16s RNA sequencing. Of the 2005 isolates collected from the lagoon, most (40.6%) were resistant to sulfamethoxazole, the least (3.5%) to ciprofloxacin, and 39% were resistant to multiple antibiotics (up to eight). Initial results for the flood-ebb flow wetland studies indicated a lower presence of ARB in ebb versus flood flows, suggesting that natural wetland processes reduced the abundance of these bacteria. Differences in the antibiotic profiles of isolates from collections in the various water sources will be discussed.
The Representation of Jewishness in Irving Thalberg's 1925 film version of Ben-Hur
Claire M. Andreae

The 1920s in the United States was a time of heightened racial and ethnic conflict due, in part, to new patterns of immigration in the preceding decades. Many of these newly arriving immigrants were Jewish, attempting to integrate into a mainstream American culture increasingly marked by anti-Semitism. In this charged environment, the Jewish film producer Irving Thalberg's Ben-Hur (1925) follows the life of its Jewish hero, Judah Ben-Hur, as he seeks revenge against a childhood friend turned archenemy. Although the film uses Jewish stereotypes, Ben-Hur consistently offers its audience a sympathetic portrayal of Jews, which would appeal to not only a growing Jewish audience, but also more progressive audience members generally. My paper will situate the film's representation of Jewishness in the broader social and cultural context of a film industry overrepresented by Jewish entrepreneurs, widespread discrimination against Jews, and attempts by many Jews to assimilate through the process of Americanization. Through close analysis of key scenes, costume design, and setting, this paper will argue that Thalberg’s film performs a delicate balancing act between the expectations of its mostly Gentile audience and a small, but significant number of Jewish viewers. Thalberg’s solution consists of appealing through elements of the plot, costume, and setting to two different and opposing audience groups, and I argue that he is successful in his endeavor.

The Seven Categories of the Symbol
Carolina Nuñez

The aim of this presentation is to enable an understanding of Eugenio Trías Sagnier’s, The Age of the Spirit. This presentation is divided into four components. The first consists in providing a biographical sketch of philosopher, Eugenio Trías Sagnier. Next, I provide an example of the methodology used in translating Trias’s work into English- an endeavor which requires uniformity with his original text in Spanish. Thirdly, I present “las siete categorías del símbolo”, “the seven categories of the symbol”: magna matter, logos, presence of the divine to the witness, scripture, interpretation, mysticism, and the symbolic consummation/event, which collectively explain how a symbol exists and how it is understood. Using Trias’s seven categories of the symbol, I provide a symbol- the Crucifix, and apply the above seven categories.

The Severity of International Crime
Alixandra Greenman

This paper examines the relative gravity of three charges commonly seen on the international stage. More specifically, this paper asks: Is there an hierarchy of seriousness among the charges of genocide, crimes against humanity and war crimes? And if a hierarchy exists, what is the impact on the sentences that have been handed down to perpetrators of these crimes? To answer these questions, I employ a mixed-methods approach. First, I examine the international treaties and statues that define these charges such as the Geneva Conventions of 1949 and the Rome Statute (1998). Next, I look to three international tribunals as examples of the application of the law. The proceedings I examine include the International Criminal Tribunals for the former Yugoslavia and Rwanda and the Special Court for Sierra Leone. Altogether, I content analyzed 122 cases with 183 defendants, which helped me to determine whether one of these categories of crime is perceived as more serious than another and whether this perception has affected the sentences that have been handed down. Determining whether the international legal system has effectively created a ranking of these classifications, this paper has tangible implications. Understanding the seriousness of these crimes is critical to evaluating the consistency of past sentencing and the application of future sentences. Given that there are multiple international tribunals and various national courts hearing international criminal law cases, this project will aid these courts in determining appropriate sentences absent any significant precedents from within their own jurisprudence to draw upon.
The Social Identity of Relationship Status in College Students
Jeremy Dunford, Elizabeth Flanigan

In previous research, relationship status has been treated on an individual basis, evaluating the link between such status and personal well-being. However, relationship status also works as a social identity, elaborately connecting groups of individuals of the same relationship status (i.e., single people with single people, coupled people with coupled people). The reality of relationship status as a social identity is emphasized in the fact that both singles and romantically coupled groups face stereotypes and that singles, as a group, experience discrimination in our Western culture. Despite these observations, empirical research has yet to examine relationship status as a social identity. The current research hopes to remedy this by demonstrating that one’s identity as single or coupled shapes perceptions of others as ingroup or outgroup members depending on their relationship status. Furthermore, the designation as ingroup or outgroup should affect one’s liking toward others and their desire to affiliate with them. To investigate these ideas, college students ages 18-24 are being recruited to complete a survey study which assesses their own relationship status and their perceptions of and feelings toward single and coupled individuals. Data are currently being collected, and the results are not yet known. We predict that individuals will show a bias toward individuals of the same relationship status as themselves, but that this effect will be strongest for people who feel most closely linked to their identity as single or coupled.

The United Nations Security Council: National Interest and Nonintervention
Alexis Pierce

Though a multitude of conflicts erupt around the world every year the United Nations does not always send in peacekeepers to regulate these conflicts. The reason behind why intervention occurs in some situations and not others is not always clear. I hypothesize that United Nations intervention will either never occur or be long delayed within the United Nations if a member of the P5 (veto-holders) believes it is in their national interest to veto the intervention. This implies that when intervention is agreed upon amongst the P5, and thus enacted by the United Nations, the effective motivation is more likely to be humanitarian in character than the self-interest of an individual nation. There have been multiple studies about the factors that cause intervention (Andersson, 2000; Gibbs, 1997; Neack, 1995; Stephen & Stedman, 2003), but no study of the possible structural causes of nonintervention. I will therefore conduct process tracing to examine cases where intervention did not occur to see if a causal link exists between P5 interest and nonintervention. In order to gain a holistic view of intervention and non-intervention I examine two countries, Sierra Leone and Liberia, as null cases where the decision to intervene happened speedily. Additionally, I study a case where intervention has not occurred, Syria, and a case where intervention was long delayed, Darfur, to identify the causal factors that lead to nonintervention.

The Verdict: Constant Error in Prosecuting Human Trafficking Crimes Around the Globe
Deanna Newton

Although abolished by law in all forms, slavery continues to exist around the globe in the form of human trafficking or, the process of enslaving a person. The prevailing literature on modern day slavery has defined modern day slavery, analyzed why modern slavery exists, offered case studies supporting this and explained how to abolish modern day slavery. One strategy postulated to human trafficking is prosecuting the perpetrators. But the question remains, what factors contribute to successful prosecution of human trafficking? To address this research question, I will examine compliance with the Trafficking Victims Protection Acts using data on human trafficking prosecutions in 181 countries from the 2012 Trafficking in Persons Report and case study research. It is hypothesized that the success of human trafficking prosecutions will be influenced by the level of development (e.g., gross domestic
product, poverty, internet penetration, number of televisions), education (e.g., literacy rates),
democratization (e.g., political and civil liberties, regime type, corruption, and internal corruption), and
advocacy. By examining the relationship between social, economic, and political factors and successful
human trafficking prosecutions, this research may illuminate the best practices, strategies, and solutions
to mitigating human trafficking.

The Wooing Game: Group Formation in Experimental Economics
Kovid Puria

The purpose of this research is to examine endogenous group formation, study of partnerships, and the
discovery of an efficient partnership formation system. Using LMU’s experimental economics
laboratory, our team will attempt to identify behavioral economic patterns after collecting data from the
subjects. More specifically, we intend to analyze the “wooing phase”, a type of group formation process
that occurs in dating, law firms, and other businesses that seek potential clients. Often when one or
more individuals look to join a group, there is this trial phase where each agent has the opportunity to
make an impression on the and has the ability to reject the offer to join together with little to no
consequence. We intend to analyze this special phase and compare our results to the efficiency of
groups in other experiments that have been exogenously determined. The experiment will consist of
many subjects that will be paired up in partners. For ten rounds, partners must work together to earn
payoffs that will add up to a cash total at the end of the experiment. At the end of each round,
participants can choose to either: partner with a different person, stay partnered with the same person,
or make their current partnership permanent for the duration of the experiment. The data and
conclusions collected from the experiment will give better insights into how effective partnerships are
formed in behavioral economics.

Tracking Vote-By-Mail: A Comparative Study of Early Voting and At-Poll Voting Behavior in the city of
Los Angeles
Brendan Hughes

In an attempt to increase voter turnout in elections, the National Voter Registration Act of 1993
established a variety of less intrusive methods for voter registration, including allowing voters to vote-
by-mail (VBM). Recent studies have found that as the population in Los Angeles increases, so does the
volume of VBM voters in citywide elections (California Secretary of State, 2012). The increased number
of VBM voters emphasizes the importance of asking: do VBM voters vote differently than at-poll voters
in the city of Los Angeles? This research compares the voting behavior of these two groups for the 2013
Los Angeles Mayoral Primary Election using exit poll and VBM telephone survey data collected by the
Center for the Study of Los Angeles. The comparative analysis of the two voting groups has multiple
levels: first, I compare whether the mayoral vote differs; next, I compare voting preferences between
various demographic groups including: age, gender, race and ethnicity, level of education, and income;
and finally, I compare the overall VBM voter turnout within the city of Los Angeles with that of Los
Angeles County in order to validate if in fact the option to vote-by-mail has increased voter participation
in local elections. This research is exploratory and contributes to the small body of literature available on
the impact of VBM on local elections, as well as demonstrates possible changes in voting trends in the
city of Los Angeles.

Transformative Gender Power Politics: The Case of Hillary Clinton
Andrea Najarian

This paper will explore the rhetorical situations behind the manifestations of Hillary Clinton as depicted
in five TIME Magazine covers and their accompanying articles through the lens of feminist criticism. The
capturing Clinton throughout her journey as first lady, senatorial candidate for New York, democratic
candidate running for the party’s nomination in the 2008 presidential election and Secretary of State under the Obama Administration. Each depicts Clinton in a variety of ways, as her role as a woman transforms and her political career advances. In the five TIME covers and articles, the rhetorical characteristics present, create a different narration and representation of the many facets of Clinton. Each identifies a specific situation articulating an argument about the representation of women in power and politics. The situations can better be understood by looking at an overview of women in power, feminist criticism and what it is designed to achieve, how other feminist critics are looking at women in power and power relations, and lastly, how Clinton’s appearances in TIME embody the development and renegotiation of women in power and the representation of women in the political sphere. I have concluded that she does not partake in feminist critics’ ideology of domination, but rather makes a new model for herself and her gender. The evolution of Clinton as justified in TIME, has proved that women can possess power and find a place in American politics.

Understanding Causes of Neural Tube Defects: The Role of INTURNED in Embryonic Development
Mariele Courtois

Neural tube defects (NTDs) are one of the most prevalent birth defects and, according to the Centers for Disease Control and Prevention, occur in approximately 1 in every 1000 births recorded in the US. Formation of the neural tube relies on the intricate coordination of participating molecular mechanisms, including cell proliferation, ciliogenesis, and Sonic Hedgehog (SHH) signaling. Using the mouse as a model system, I contributed to characterizing the recessive hypomorph of the Inturned gene in IntuDtm. INTURNED is a planar cell polarity effector protein required for ciliogenesis. Primary phenotypes of IntuDtm/dtm include exencephaly, preaxial polydactyly, and reduced nodal cilia. To characterize this hypomorphic allele, phenotypes were scored for E10.5-14.5 embryos after dissection. PCR and gel electrophoresis were conducted to compare genotypes to phenotypes and to determine penetrance of phenotypes. Bone and cartilage staining was utilized to compare bone formation between mutant and wild type littermates. Immunohistochemical analysis and confocal microscopy were used to study cell proliferation, cilia formation, and SHH-induced patterning of the neural tube. Experimental findings indicate IntuDtm mutants exhibit reduced bone formation, polydactyly, and reduced cell proliferation and cilia. Results suggest Inturned must be important to cell proliferation and cilia formation, key components of embryonic development. This characterization will be important to the Niswander lab because this line can be used to study genetic-environmental interactions, such as Folic Acid-mediated effects on cilia mutants, and, moving forward, these findings may also contribute insights into human ciliopathies, which are also associated with polydactyly, neural tube defects, and reduced cilia.

Understanding Effects of Human Activity on Intertidal Biota
James Sobotka

One of the most fragile, and due to its large array of unique sea life one of the most trafficked, environments found along coastlines is the intertidal zone. Organisms that live within these areas are highly susceptible to human activity. Due to their fragile nature, the types and frequency of human activity can greatly change the demographic of these environments. This study was designed to determine the types, frequency and location of human traffic within these intertidal zones. Three locations along the Palos Verdes peninsula were monitored two days a week. Each location was split into zones and human activity was monitored for thirty minutes. Instantaneous Scan checks were made every three minutes. Activity, frequency and location within the specific zones at each location were recorded. Preliminary findings show that human traffic and activity display very specific patterns as to where each is occurring and the paths by which travel in and out of the intertidal zone occur. These activities can also be predicted based on varying conditions, such as tide, surface water temperature, air temperature and precipitation. These findings are significant in helping to establish locations of MPAs.
(marine protected areas) and in identifying species within areas that are endangered and possible causes for their decline.

**Understanding the Effect of Feral Cats on Loyola Marymount University’s Campus Using Remote Sensing Cameras**

Orlando Chirikian, Leslie Griffin, Lena Hunt, Mark Lee, Laura Terada

In many urban ecosystems, feral cats have become an important species though little is yet known about the structure and impact of their colonies. In order to add to the information pool regarding this ecological issue, we examined the dynamics of the colony present on Loyola Marymount University’s campus. The presence of the feral cat colony feeding stations on LMU’s campus affects the local ecosystem through residual food that encourages additional animals onto campus. Game cameras were placed at feral cat feeding stations to identify both the presence of non-target species (possums, raccoons, coyotes, or foxes) at the feeding sites on the campus and the complex social structure of the feral cat colony. The study is still ongoing, however, the presented data will be comprised of these photos that reveal the feeding nature of feral cats, the social structure of the colonies, and the “non-target” species affected by feeding stations. We will also have an average of sightings of cats and “non-target” species based on the presence/absence data from the photos. We will use these photos to update an ongoing feral cat “mugbook” comprised of photos and descriptions of each cat. This will be used as a census tool that will contribute to a long-term study of the on campus cats leading to a deeper understanding of feral cat colonies as a whole.

**Understanding Women’s ‘Body Politics’ in the United States: Acts of Modern Fraternal Patriarchy from a Crisis in Kinship Theory**

Courtney Olson

Politicization refers to the act of giving a subject political tone or character, for the purpose of political gain. Today, women’s bodies have taken on robust political meaning with regard to reproductive rights. The “gain” achieved by their politicization is structural; it compensates for deteriorating kinship systems, a form of cultural organization characterized by the exchange of women between men. This politicization and its structural effects depict the presence of modern fraternal patriarchy. Fraternal patriarchy, rather than power founded in the right of the father, refers to power lying in the bonds between men. Though the presence of women’s bodies in American politics is not new, the extent to which this presence has recently grown is a concern. Evidence is presented in political rhetoric and state-level legislation; the year 2011 saw a record number of restrictions to abortion access. Should “body politics” be viewed as a recent decline of women’s rights and status? I examine this conflict by applying a comparison of kinship theory and modern fraternal patriarchy to the question, exploring how we can understand this increased focus. To frame the question, I analyze the relationship between body politics rhetoric and restrictive state-level legislation, using rhetoric from six 2012 congressional candidates and 2011-2012 data from the Guttmacher Institute. I conclude the restrictions placed on women’s bodies today actually denote progress for women’s status, as this legislation shows an attempt to grasp at what is breaking down – structures of kinship which place women as conduits rather than partners in relationships.

**Upper-Limb Motion-Capture (MoCap) Testbed**

Andrew Petersen, Leonard Turcios

The goal was to develop a wireless motion-capture system that measured human movement. It used wireless-sensor technologies worn by the user of the system. The accelerometers and magnetometers of wireless sensor nodes were programmed in Visual C# in order to measure and calculate their orientation in a 3D space. Then, algorithms were created in order to generate a visual 3D image of a person wearing multiple sensor nodes across on his or her arm. The results showed that the system
determined shoulder movements with an average accuracy of ±5 degrees. The use of this research can be applied to body-motion music generation, animation, robotics, and physical therapy.

Using Microwaves to Detect Breast Cancer
Andrew Petersen

The purpose of this research project is to explore the methods of using microwaves to help diagnose breast cancer. There is a need for a more reliable, less invasive, and harmless way to diagnose breast cancer, and this work will hopefully take steps in that direction. The research focuses on beam-forming phased antenna arrays, which could be used to map the dielectric characteristics of the breast tissue. Existing work done by other researchers will be recreated in a finite-difference time-domain (FDTD) computational electromagnetics program. Specifically, a patch antenna designed by the University of Bristol, UK, will be constructed and simulated in the FDTD computational electromagnetics software. Parts of the design were independently verified, and missing geometry details had to be estimated or calculated.

Vascular anatomy of the succulent shoot tissue of Salicornia pacifica
David Chirikian, James Sobotka

Salicornia pacifica is a halophytic succulent found in the saltmarshes of southern California. Despite living in an environment of high salinity, S. pacifica is able to cope with the salt stress. In intolerant species, salt stress causes water in the plant’s cells to rush out of the cell in an attempt to balance out the levels of salt and water. This results in the cells shriveling up and dying, killing the plant. S. pacifica though thrives, especially with high amounts of salt. The morphological and physiological mechanisms associated with salt tolerance in this species are poorly described. Understanding these mechanisms begins with defining the vascular anatomy of S. pacifica. Samples of S. pacifica were collected from the Ballona Wetlands in Playa del Rey, California. Both mature shoots and seedlings were collected. Samples were cleared and stained using several techniques including submersion in 2.5 or 5% NaOH, 1% Safranin, and 1% Fast Green. Distribution, size of veins, and vein density per surface area were measured. Analysis of the stained samples revealed a network of veins, which subtend the photosynthetic tissue. These veins originate off major veins that connect to the stub at the node. This suggests that the succulent tissue surrounding the woody stem is foliar in origin. The reflexed nature of the major veins ("mid rib" equivalents) indicates that the succulent tissue (which is proposed to be the plant’s leaf) surrounds the node below its origin, an arrangement that allows lateral branch formation. Unusual exceptionally large and wide tracheids occur in the photosynthetic tissue, possibly connected to the vascular network. Their function is not yet known. This information will give researchers and conservationists important knowledge into a crucial wetlands plant.

Wastewater Management in El Salvador
Mahelet Gebeyhu, Mara Luevano, Philip Mateo, Jennifer Rodriguez

Over the last winter break, a group of 10 LMU engineering students traveled to El Salvador to address water quality issues in the small island community of El Espíritu Santo. The purpose of this trip was to provide a new source of drinking water, distribute water filters, test previously distributed filters, and perform a site assessment for a proposed wastewater management system. A majority of our time on the island was spent working with the island’s community to place 600 meters of piping leading to a new well for the island’s only clinic. This well replaced the clinic’s current well, which is experiencing saltwater intrusion. A UV filter was also installed at the clinic to disinfect the well water. We also
distributed 63 table-top water filters so families could have their own filtered water in their homes. The filters we chose to distribute to the families were Sawyer brand filters, which filter 20 gallons every 15 minutes and filter out the bacteria that the island is severely contaminated with. This component of the project also involved presenting an educational workshop to the community during which the use and maintenance of the filters was conveyed. As additional instruction to the community, the importance of the many health and development aspects of having safe, clean drinking water was highlighted. In order to test the effectiveness of the Sawyer and UV filters, bacteria testing was conducted on filters distributed on our previous visit to the island. Water samples were collected from 8 previously distributed Sawyer filters, 2 new Sawyer filters, the school’s UV filter, and 2 American Red Cross filters. The results from the test showed that the filters we had distributed were effective in removing bacteria and remain effective as long as proper handling was demonstrated by the owners. Although the test results prove that our filters are effective, we understand that they do not solve the island’s underlying issue of groundwater contamination. Until now, wastewater is an issue that has been minimally addressed by the islanders. Out of the four streets that make up the island, only two have a type of sewer system to transport water. Not all the houses are connected to this system, causing wastewater to run out into the main roads. The existing sewers lead to a cesspool at the end of the village. Many animals can sometimes be found bathing in the cesspool. These unsanitary conditions lead to cross-contamination, especially since the cesspool is adjacent to their fish harvesting pond. During our last visit, two members of our team conducted a site assessment of the island so we could design a viable sustainable solution to the wastewater issues on the island. Using the data collected from our site assessment, we are designing a uniform sewer system throughout the island and implementing an Advanced Integrated Wastewater Pond System to collect and treat the island’s wastewater.

Westchester Sidewalk Evaluation
Mukta Mohan

Although sidewalks play an integral part in urban life by connecting people to places and acting as democratic public spaces, not much research has been conducted to examine methodologies for maintenance assessment (Loukaitou-Sideris & Ehrenfeucht, 2009; Williams et. al., 2005). In August 2012, the Los Angeles City Council proposed launching a sidewalk repair survey that would take three years to complete and cost the city $10 million (Zahniser, 2012). This study is a response to the proposal made by Councilmembers Rosendahl, Garcetti, and Buscaino to tap into the network of community activists and smartphone technology for sidewalk surveys (Zahniser, 2012). This project examines existing sidewalk evaluation methodologies and local guidelines for maintenance from other metropolitan areas, and it also proposes a survey to be conducted in the Westchester neighborhood. I will develop a sidewalk assessment tool that empowers community members and uses available smartphone technology. The tool will focus on three key factors – location identification, distress identification, and priority ranking. This will be executed through field assessment, a basic pedestrian priority model, and community interviews. With a comprehensive literature review and plan for survey implementation, this project provides a framework for Los Angeles and similar cities to implement community driven sidewalk evaluations, saving time and money to expedite the much needed repair process.

What is Love? On the Mystical Theology of Hadewijch of Antwerp
Jaskeerat Malik

Hadewijch of Antwerp was one of the most important and controversial Christian women mystics of the Middle Ages. She was part of the so-called New Mysticism, which attempted to undercut binaries between laity and clergy, men and women. The first Dutch poet, she wrote down her poetry and visions in the vernacular, itself a subversive act since the language and the genre made it accessible and comprehensible to the laity. She is best known for her love poems and visions, which reveal her passionate devotion to God. Although Hadewijch was never officially declared a heretic, many of these poems, due to their vivid imagery, apparent eroticism, and claims that Hadewijch becomes one with
God evoke controversy. In this paper, I provide a careful reading of Hadewijch’s “Poem 9 (In Stanza),” her famous/infamous “Vision 7,” and her “Poem 16 (In Couplets),” writings that offer us an entrée into her complex love mysticism. In this interdisciplinary paper, I engage theology, history, and literature. Building on the scholarship of such historians as Barbara Newman and Andrea Janelle Dickens, I probe Hadewijch’s rich concept of love, articulated through such themes as service, chivalry, and eating. I argue that her poems and visions are not erotic in the sense that we understand eroticism today, but an expression of Hadewijch’s deep love for God. I also contend that Hadewijch’s controversial claim “[t]o become God with God” has been falsely interpreted as an heretical assertion, even though it is meant to express a deep and unbreakable love that comes from direct experience of oneness with God.

Wolbachia Frequency and Transmission in Dysdera crocata and Armadillidiidae
Nicholas Lehrhoff, Alexandra Reivitis, Jaee Tamhane

Wolbachia is an intracellular α-proteobacterium that is known to infect isopods, arthropods, and other invertebrates. These bacteria can cause reproductive alterations including the feminization of offspring. In particular, these findings have been studied in the spider species Dysdera crocata (Woodlouse Hunter), which revealed that egg sacs were sex biased in favor of female offspring. The transmission of Wolbachia occurs from parent to offspring due to cells within the female reproductive system, referred to as vertical transmission. Dysdera crocata preys on the isopod species Armadillidiidae (roly-poly bug), also known to be infected with Wolbachia. The current study investigated the possibility of horizontal transmission between predator and prey and explored this potential relationship by testing whether there is a correlation between the occurrence of Wolbachia in Dysdera crocata and the occurrence of the bacteria in Armadillidiidae. A population of Dysdera crocata (n=23 from three different life stages) sampled from Kenneth Hahn State Park in May of 2012 was tested and found to be negative for Wolbachia by means of PCR using a 16s rRNA, but this does not disprove the theory that Wolbachia is found in D. crocata. Follow-up studies will be necessary in order to determine whether horizontal transmission is occurring.

Women’s Land Rights and Inheritance Rights in India: A Case Study of Women in Karnataka
Sahar Mansoor

According to the United Nation’s Food and Agriculture Organization, “Women produce about half of the world’s food but own only about two percent of all land.” Additionally, women own, “on an average, nineteen percent of landholdings, significantly less than men in every region of the world.” In denying women property rights we are violating millions of women’s fundamental human rights. Through interviews and surveys conducted with 100 women from diverse education, socio-economic and religious backgrounds in India (state of Karnataka), this thesis aims to examine the relationship between education, political participation, religion, labor force participation and attitudes towards egalitarian land and inheritance rights in India.

Working memory training improves behavioral self-regulation in academically at-risk kindergarteners
Monique Arrigotti, Nicole Froideveaux, Caitlyn Handy, Natalie Hejran, Erica Medina, Jenny Scheller, Liana Zannis

Self-regulation is the ability to control emotions and behaviors and predicts early academic performance (Ponitz et al., 2008; McClelland & Cameron, 2012). Normal development of working memory (WM) is associated with enhanced self-regulation (Blair & Diamond, 2008). We hypothesized that WM training would improve self-regulation. We conducted a study using the Cogmed computer program to train nonverbal WM in academically at-risk kindergarteners (n = 11) in Los Angeles at the beginning of the school year. Cogmed was administered five days a week for five weeks. Children at a comparable site
(control; n = 11) were matched on age, gender, maternal education, early reading scores, and WM at the beginning of the school year. The kindergarteners in the trained and untrained groups (11 boys and 11 girls) were Hispanic or mixed race and all from schools with high proportions of children from low-income families and all fluent in English (M age = 61.73 months, SD = 4.6). At mid-year, we found that children who had received WM training had significantly higher scores on behavioral self-regulation measured with the Head-Toes-Knees Shoulders task (HTKS: Ponitz et al., 2009) compared to control children, t(12.04) = 2.874, p = .01, d = 1.22. We also found that trained children had significantly higher scores on verbal working memory, measured with WISC-R digits-back, t(20) = 1.228, p = .01, d = 1.15. Our findings suggest that visuospatial WM training facilitates the development of self-regulation and verbal working memory in academically-at-risk kindergarteners.
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