

Southwestern University

15th Annual

**Research and
Creative Works
Symposium**



April 8, 2014

PROGRAM

A celebration of the work of our
students, faculty, and staff

2014 STUDENT WORKS SYMPOSIUM FROM EVERY VOICE

Southwestern University
Georgetown, Texas

EVENT PLANNER

Christine C. Vasquez
Office of the Provost
Southwestern University

STUDENT PROGRAM CHAIR

Joseph Kyle, Environmental Studies
Class of 2014
Southwestern University

Special Thanks To:

Office of the Provost
Paideia Program

April 8, 2014

To: Campus Visitors and Members of the Southwestern University and Georgetown Communities

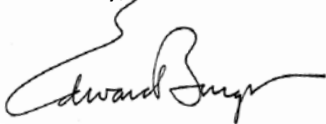
Welcome to the Research and Creative Works Symposium, a celebration of Southwestern University. The symposium showcases the work of students, staff and faculty through panel discussions, poster and oral presentations, art exhibits and performances. Two hundred and sixty presenters from throughout the University's departments, programs and offices are participating in this year's Symposium.

I extend an especially warm welcome to prospective students and their families and to members of the Georgetown community. In the Symposium, you see Southwestern at its best. I hope you enjoy the event as much as we enjoy having you on campus. You may find the following particularly interesting:

- panel presentations from *Representing Gender, Global Health and Mediterranean Mingling*, our new *Paideia* interdisciplinary programs
- a faculty/student panel on undergraduate research at the University
- poster presentations on student projects
- exhibitions and performances in the Fine Arts building
- an evening performance by the Southwestern University Chorale

Thank you to all who have worked so hard to make our Research and Creative Works Symposium an outstanding celebration of Southwestern University.

Sincerely,

A handwritten signature in black ink that reads "Edward Burger". The signature is fluid and cursive, with a long horizontal stroke at the end.

Edward Burger

President and Professor

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SCHEDULE AT A GLANCE

MONDAY, APRIL 7, 2014

3:00-8:00 Registration Alma Thomas Fine Arts Center

TUESDAY, APRIL 8, 2014

8:30-5:00 Information and Volunteer Check-in Table Bishops Lounge

9:00-9:45 Representing Gender Paideia Cluster Lynda McCombs Room

9:45-10:45 Undergraduate Research Panel Lynda McCombs Room

10:00-10:30 *Sticks and Stones*, a play Caldwell-Carvey Foyer
SU Theatre and Social Change Class in collaboration
with Sarah Beauchamp School drama students
Refreshments

10:45-11:00 Introduction and Welcoming Remarks Main Lawn
Edward Burger, President of Southwestern University

11:00-12:00 Creative Works and Exhibits Alma Thomas Fine Arts Center

11:00-12:00 Student Panels Mood Bridwell Atrium

11:15-12:00 Global Health Paideia Cluster Lynda McCombs Room

12:00-1:00 Lunch Break Commons Dining Hall

1:00-2:00 Student Panels Mood Bridwell Atrium

1:15-4:15 Oral Presentations FW Olin Building

1:15-3:50 PechaKucha 20x20 Talks The Cove

2:15-2:45 *Refreshments* Various Locations

2:45-3:30 Mediterranean Mingling Paideia Cluster Lynda McCombs Room

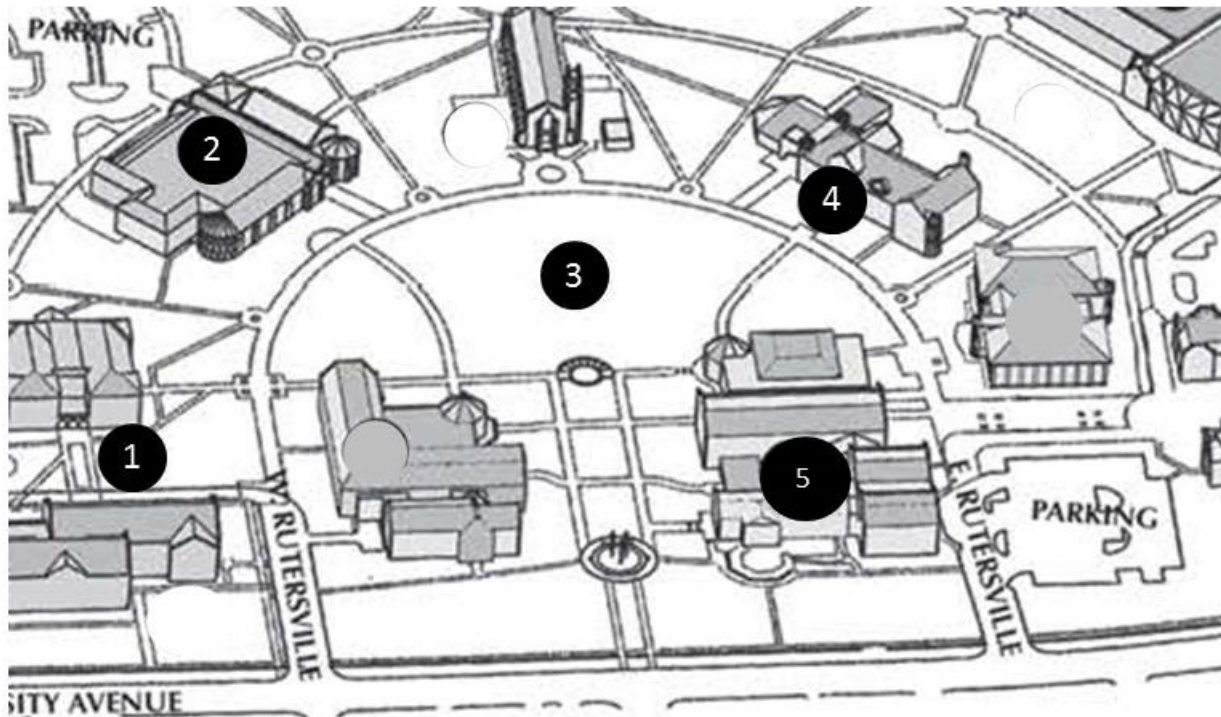
3:00-4:00 Student Panels Mood Bridwell Atrium

4:00-5:00 Poster Presentations Bishops Lounge

5:30-6:15 Celebration Hosted by Joseph Kyle Bishops Lounge
Awards Presented by President Burger
Light meal

6:30 Chorale – Fine Arts Performance Alma Thomas Theatre

MAP OF ACTIVITIES



1. **Mood Bridwell Atrium**

Refreshments (p.m.)

Student Panels

2. **Red & Charline McCombs Campus Center**

Celebration and Awards

Information/Volunteer Table

Paideia Clusters

PechaKucha 20x20 Talks

Poster Presentations

Refreshments (a.m. & p.m.)

Undergraduate Research Faculty/Student Panel

3. **Main Lawn**

Creative Works (Sphere)

Introduction and Welcoming Remarks

4. **FW Olin Building**

Oral Presentations

Refreshments

5. **Alma Thomas Fine Arts Center**

Creative Works and Exhibits

Monday Registration

Performance (Tippit & Chorale)

Refreshments (a.m.)

PROGRAM AGENDA

PAIDEIA CLUSTER PRESENTATIONS

Lynda McCombs Room

- 9:00 1. Representing Gender
Propaganda Posters during the Chinese Cultural Revolution
- 11:15 2. Global Health
The Many Faces of Global Health
- 2:45 3. Mediterranean Mingling
Jewish Migration in the Mediterranean World

UNDERGRADUATE RESEARCH PANEL

Lynda McCombs Room

- 9:45 4. Undergraduate Research Panel

CREATIVE WORKS AND EXHIBITIONS

Alma Thomas Fine Arts Center

- 10:00 5. *Sticks and Stones*, a play
SU Theatre and Social Change Class in collaboration with Sarah Beauchamp School drama students
- 11:00 6. Erika Clugston
B.F.A. Art Exhibition, "Pressure Points"
7. Carmen Gadt
B.F.A. Art Exhibition, "Nostalgia"
8. Sarah Loraine Kinney
B.F.A. Art Exhibition, "Selfies"
9. Lydia Au
Thunderbird Mask
10. JoLiza Barrera
Apostate Monk
11. Taylor Braselton
Noh Mask
12. Rachel Ehler
The Columbina Mask
13. Zachary Finger
Mayo Indian Festival (Pascola) Mask
14. Caroline Gaspard
Transylvanian Folk Mask
15. Nicol Hurst
Sri Lankan Kolam Mask
16. Andrea Lee
Anubis Mask - Keeper of the Dead
17. Dakota Skinner
Xacalcojé Mask
18. Matthew Zagurski
Nahuatl Death Mask

19. Taylor Hutchison, Victoria J Hutchison
The Perfect Glaze: Using Evolutionary Computing to Format the Most Aesthetically Pleasing Glaze
20. Oliver Sale, Hector Posadas, Evan Jones
Reverse Osmosis Water Filtration System
21. Caitlin Schneider
Mapping the Zenas Matthews Diary
22. Kyle Zarosky, Brandon Behrens, Clayton Sparks
Development of a Lighted Flat Field Device for the Fountainwood Observatory
23. Amir Ardjomand Hessabi, Seve DeGrand, Keeley Coburn
Solar Lounge
24. Anne Bannister
Warm of Heart: A Visual Story of Rural Thailand
25. Dyana Shearer
Fantasy Art in a Leadership Perspectives (Business) Class?
26. Xan Koonce
Unspoken Words
27. Catherine Cerna
Our Spineless Heroes: An Unlikely Tale
28. Stephan Meyer, Zach Whitlock, Jonathan Kissner, Austin Barber
Up-Hill Assist Self-Powered Bicycle
29. Eric Rodriguez, Kelsey Kingston
The Mobile Inductive Charger (MIC)
30. Isabella Ferranti, Ally Mijol, Andrew Josefchak, Elise Hernandez
Experiencing Geometry

PANELS

Mood Bridwell Atrium

- | | |
|-------|--|
| 11:00 | 31. Ashley Johnson
Institutional Corruption: A Perpetuator of Human Rights Abuses in China |
| | 32. Laura Meitz
China's Hydropower Policy According to Mill's Utilitarianism: An Ecological Disaster or Solution to the Pollution Crisis? |
| | 33. Cheyenne Wooldridge
Ethics of the Chinese One Child Policy and Relevancy in Modern China |
| | 34. Ashton Sharp-Lucas
The European Court of Human Rights and Kantian Ethics |
| 1:00 | 35. Julie Jespersen
Why Johnson and Not Kennedy: The Efficacy and Ethics of Tactics used in the Push for Civil Rights Legislation Under Lyndon Baines Johnson |
| | 36. Lauryn Deering
Personal Relationships and Political Ethics |
| | 37. Meg Greenfield
Work-Family Balance: A Comparative Case Study of Spain and Germany |
| | 38. Lily Welborn
Gender Equity in Argentinean and Chilean Politics |
| 3:00 | 39. Stephen Holloway
Ethics and the Media: Anything for the Scoop? |

40. Eleanor O'Neil
Negativity, Virility, and Democracy: How the Tone of Political Campaigns on Social Networking Sites Impacts Youth Political Participation in the United States
41. Scott Kelly
The Nuclear Taboo that Has Developed Through Non-Use of the Atomic Bomb During the Cold War
42. Bailey Olderog
Significance of the Civilian-Military Relationship in the United States

PECHAKUCHA 20X20 TALKS

The Cove

- | | | |
|------|-----|---|
| 1:15 | 43. | Nicoletta Memos
Turning a Blind Eye to Trachoma: Addressing Infectious Blindness |
| 1:22 | 44. | Emilie Evans
The Effects of Population Movement on Neglected Tropical Disease Transmission |
| 1:29 | 45. | Katie Ferrick
One Bug, One Bite, One Life |
| 1:36 | 46. | Amber Cochran
Under the Sea: The Effects of Pathogens and Zoonosis on Declining Reef Systems |
| 1:43 | 47. | Kron Heilman
Plant Immunity Mediated Through siRNAs and Symbiotic Relationships |
| 1:50 | 48. | Shelby Love
The Final Frontier: Bacterial Growth in Space |
| 1:57 | 49. | Megan Pope
From Smog to Microorganisms in Beijing and Why It Matters |
| 2:04 | 50. | Melva Maldonado
Interaction Between Gut Microbiota and Brain |
| 2:11 | 51. | Terra Stefaniakl
Celiac Disease and Potential Microbial Influence |
| 2:18 | 52. | Claudine Reyes
Gut Microbiota Shifts as a Factor in Diabetes Progression |
| 2:25 | 53. | Mirabella Alfaro
Antibacterial Properties of Common Plant Extracts and Oils |
| 2:32 | 54. | Benjamin Friou
The Food We Eat Because of Bacteria |
| 2:39 | 55. | Ben Thumma
Under Our Noses: New Avenues of Anti-Microbial Treatment May Be Closer Than We Think |
| 2:46 | 56. | Manuel Ortegon
Amitotic Resistance in Different Candida Albicans Isolates |
| 2:53 | 57. | Nolan Klein
The Spread of Antibiotic Resistance is a Problem that Contravenes Hospitals and Must Be Addressed Through Community-Wide Efforts |
| 3:00 | 58. | Zach Jenner
A Story of Tuberculosis: Veni, Vidi Vici (or so we thought) |
| 3:07 | 59. | Ed Yu
Anti-infective Strategy Against Staphylococcus Aureus |

- 3:14 60. Zoe Arispe
Toxic Shock Syndrome: A Known Syndrome, Unknown Killer
- 3:21 61. Chelsea Peterson
The Use of Bacteria in Cancer Research
- 3:28 62. Ivan Cruickshank
Old Virus Brings New Perspectives

POSTER PRESENTATIONS

Bishops Lounge

- 4:00 63. Benjamin Shapiro
The Life Cycle of Ski Equipment
64. Nisha Pillai
The Process of Metal Recycling and its Effects on the Environment
65. Benjamin Friou
Appreciate Invertebrates in our Ecosystem! The Game
66. Alex Petrucci
Like Water for Snails: A Case Study of Emerald Lake as a System Invaded with Apple Snails (*Pomacea Maculata*)
67. Katherine Nave, Chandler Johnson
Recording Villas with *Restoring Ancient Stabia*
68. Katie Ferrick
Effects of Antioxidants on Radical Induced DNA Damage
69. Zane Johnson, Sarah Ally
Effect of Methamphetamine on DNA Damage in Four Rat Brain Regions
70. Elizabeth Clementson
Our Often Ignored Invertebrate Benefactors in Agriculture
71. Tessa Galloway
Invertebrates and Their Effect on Medication
72. Daniel Lenihan
Spiders on Drugs
73. Betsy N Warren
Expressive Arts and the Intuitive Painting Process
74. Carson Savrick
Go West Young Snails: Origin of Invasive *Pomacea Maculata* in Louisiana
75. Audrey Garcia
Identification and Characterization of a Putative Transcriptional Repressor on the Integrating Conjugative Element R391
76. Ivan Cruickshank
GIS Based Mapping of Yazoo Stream Changes
77. Heba Abdel-Rahim
The Effects of Roads and Cattle on Amazonian Deforestation
78. Gabby Hunt
Health Care in Williamson County: Is this Country Really Run by Old People?
79. Rachel DeLong, Kara Curley, Laura Steed, Noah Bierwirth, Busola Okunnu
Subcellar Distribution of Claudin-3 in MCF-7 Breast Cancer Cells
80. Kara Curley
Gender and Age Trends of the Coxsackievirus: A Retrospective Study of a Pediatric Practice

81. Emily Ammon, Kyle Allen
Effects of Stride Rate Manipulation in Shoes with Varying Drop Heights
82. Maxime Boneza
Variations in Phenolic Composition and Antioxidants Priorities among Lemon Balm (*melissa officinalis*) Cultivars
83. Katie Costello
Progress Toward the Determination of Antioxidant Properties of Flavanone Metabolites
84. Danielle Ezzell
New Girl: A New Masculinity
85. Andrew Banister, Heather Gronewald, Paris Nelson, Jordan King, Salma Chiheb, John Daniels
Automating Academic Advising Assignment
86. Paris Nelson
A Genetic Algorithm Approach to the Traveling Salesman Problem
87. Garhett Bonneaux, Matthew Chaltain, Geoffrey Morris, Abigail Dunn, Alain Chau
Benefits for the Greater Leander Chamber of Commerce
88. Robert Lehr, Saad Benabderrazik, Katie Lelinski, Matthew Miller, Nicholas Moore
Southwestern and the Future of Paideia; Optimizing the Paideia Program
89. Nozuko Sutherland-Millie
Perspective and Perception: A Three-Dimensional View
90. Rebecca Wilson, Eric Oden, Stephen Holloway
The Open Source Voting Machine
91. Rebecca Wilson, Brittany Pugh, Nick Sivon, Christopher Gilbert, Curran Johnston, Emily Gradisar
Optimal Resource Utilization at Ride on Center for Kids (ROCK)
92. Kendall Guidroz, Daniel Ross, Ruoying Hao
Developing Student Leaders: Lessons in Shifting the Power
93. Emma Davis, Sarah Puffer, Brandi Martin
Student Perspectives; Environmentally Sustainable Study Abroad
94. Isidoro Ramirez
Are Alternative Financial Service Providers Targeting Minorities?
95. Austin Spraez
Assessing the Resource Potential of Southwestern's Undeveloped Land
96. Kayla Guentzel
STARS Across the Nation
97. Cody Phelps
The Transformation of China's Tibet Policy
98. Eryn Quinn
Sociopolitical Comparisons Between Tibetan Buddhism and the Roman Catholic Church
99. Shawnee Vasquez
The Challenges the Children of Tibet Face Under Chinese Rule
100. Julianne Wood
To What Extent Does Buddhism Influence Tibetan Society Throughout History
101. Natalie Jordan, Grace Naeger
Man and Woman: An Application of Irigarayan Theory
102. Olivia Noel, Cadie Pullig, Amara Yachimski
Kings of Pastry: Let Them Eat Cake!

103. Michael Martinez
What's the Difference? A Look at Jamaican and United States Musical Culture
104. Wade Smith
African-American Composer Jacob J. Sawyer: Research Methodology, Biography, and Analytical Approach
105. Kathryn Reagan
Servant Leadership: A BIG Case Study
106. Kelsey Abel, Joseph Kyle
Eco-Dome Greenhouse; Food Without Borders
107. Marion Clendenen
Tibetan Buddhism and It's Influence on the Chinese Court System Through Art
108. James Grachos
Tibetan Film Post 1958
109. Dayton Blankenship
The Extent to Which the Use and Teaching of the Tibetan Language has Catalyzed Tibetan Nationalism
110. Victoria Hughes, Charles Berndt
Gender Differences in Avoidant Attachment Behaviors as Exhibited on Facebook
111. Quinlyn Morrow, Cristina Muyschondt
Variations of Support Effectiveness as a Function of Self-Efficacy and Support Type
112. Aimee Slagle
Correlation of Perceived Social Support, Investment and Commitment
113. Meredith Rollins, Celia Caraccioli
Behavioral Changes in Children with Autism Spectrum Disorder Associated with Equine Assisted Activities and Therapy
114. Eowyn Scott, Maya Duna, Kara Manning, Samantha Sada, Sara Goodman
Behaviors at the Bar and in the Bedroom
115. Danielle VanZandt
Theory and Practice in the Public Relations Industry
116. Ben Applegate
The Life, Death, and Rebirth of Paper
117. Craig Bradley
Aluminum Bi-Cycle
118. Travis Fuller
The Product of Life of Lithium-Ion Batteries
119. Rachel Cross, Natalie Rivera
Evolutionary Trade-Offs in Fruit
120. Patricia Schiaffini, Adrienne Dodd, Laura Meitz, Arun Jacobs, Angelyn Convertino, Emmett Gonzalez, Becca Hopkins, Sara Hall
SU Students Chinese and Spanish in Georgetown ISD Schools

ORAL PRESENTATIONS

Olin 105

- | | |
|------|---|
| 1:15 | 121. Hayley Hamilton
Control of Protein Translational Rate by mTOR in Kirsten Sarcoma Virus-Transformed Murine Embryonic Fibroblasts |
| 1:35 | 122. Tran Le
Effect of a Glutamine Deficient Medium on Protein Translation in V-ras Transformed Murine Embryonic Fibroblasts |

- 1:55 123. Maxwell Oldham
Effects of Nutrient Deprivation on the Apoptotic and Autophagic Responses of Malignantly Transformed Cells
- 2:15 124. Tyler Poi
Analysis of Triglyceride Rich Lipoprotein Oxidation with Cardiovascular Disease Implications
- 2:35 125. Adam Shaikh
Antioxidative Effect of Caffeic Acid on Hydroxyl Radical Induced DNA Damage
- 2:55 126. Craig Katkic
Synthesis and Characterization of Layered Dichalcogenides and Coordination Complexes of Zinc and Platinum with Natural Dyes
- 3:15 127. Alec Bergerson
Seasonal Comparison of Organic and Conventionally Grown Basil Leaves Commercially Available in Texas
- 3:35 128. Daniel Poole
Effects of Nitrogen Fertilization on the Phenolic Composition and Antioxidant Properties of Lemon Balm (*Melissa officinalis*)
- 3:55 129. Matthew Nickell
Synthesis and Structural Analysis of Organometallic Complexes of 5, 5'-Dithiobis (2-nitrobenzoic acid) with Cu(I) and Co(II)
- 4:15 130. Tim Williams
Antioxidant Prevention of Triglyceride Rich Lipoprotein Oxidation
- Olin 111**
- 1:15 131. Marco Alcocer
Supranational Spanish Dialects, Proficiency, and Attitudes
- 1:30 132. Zoe Arispe
Serving the Community: Bilingual Services in Nonprofit Organizations
- 1:45 133. Jacob Brown
Male Models: American Mass Culture and Constructions of Masculinity in Rosa Montero's *Amado Amo*
- 2:00 134. Lauren Fellers
"Una Foto de Guerra:" La Representación de Memoria en la Obra de Carlos Ruiz Zafón / "A photo of war:" The Representation of Memory in the Works of Carlos Ruiz Zafón (*Presentation in Spanish*)
- 2:15 135. Maria Gonzalez
Adult Spanish Speakers' Attitudes Towards English Use
- 2:30 136. Kevin Lentz
Buddhist Monks and Violence in Tibet
- 2:45 137. Carl Robertson
You Are the Monkey King: Ideas of the Self in Reading *The Journey to the West*
- 3:00 138. Jamie Rogers
Women and Religion in Tibet
- 3:15 139. Rebecca Merino
Strategies for Spanish-Language Maintenance
- 3:30 140. Jessica Parada
Hispanics and Spanglish: An Investigation of Attitudes About Spanglish Between Different Generations of Spanish Speakers
- 3:45 141. Anthony Pritchett
Linguistic Landscape of Georgetown, Texas

- 4:00 142. Noelle Webster
The Social Significance of Spanish Use in the Restaurant Industry

Olin 207

- 1:15 143. Rachel Anderson
How Shocking: Creating A Brechtian Audience
- 1:30 144. Abby Birkett
Even If Their Faces Fall Off
- 1:45 145. Chase Brewer
Not So Epic Theatre: The Influence of Stanislavsky in the Works of Bertolt Brecht
- 2:00 146. Andja Budincich
Costume, Identity, and the Gestus of Gender in Brecht's *Good Person of Szechwan*
- 2:15 147. Stetson Gilchrest
A Middle Eastern Mother Courage
- 2:30 148. Leah Korenstein
Bertolt Brecht's Influence on Modern Scene Design
- 2:45 149. Shannon Hulett
Evolution of the Dalai Lama
- 3:00 150. Emma Martinsen
Brecht and His Words
- 3:15 151. Corinne Mears
Interpretation in Kurt Weill's *Pirate Jenny*
- 3:30 152. Chaz Sanders
Money Can't Buy Happiness: An Exploration of Capitalist Themes in Bertolt Brecht's *The Good Person of Szechwan* and Arthur Miller's *Death of a Salesman*
- 3:45 153. Phil Smith
The Great Escape: A Comprehensive Look at Education and Escapism in Theatre
- 4:00 154. Megan Vestal
Mahogany in Context: Brecht's Commentaries on Commodification

Olin 209

- 1:30 155. Paris Nelson, Rob Campbell, Matthew Krall, Carter Cowan, Garhett Bonneaux, Christopher Gilbert, Alexander Hicks
CodeQuest
- 1:45 156. Nicoletta Memos, Bekah Vela
Endocannabinoids Influence Female Sexual Motivation
- 2:00 157. Jessica Olson
Women and Global Governance: Gender Inequality in the United Nations Framework Convention on Climate Change

Olin 222

- 1:15 158. Andrew Banister
Can You Make Change by Increasing Minimum Wage?
- 1:30 159. Heather Gronewald
The Hazards and History of Undergraduate Attrition
- 1:45 160. Robert Lehr
Perspective Images: Finding the Optimal Viewing Point
- 2:00 161. Rebekah Hubstenberger
Exploring the Constitutive Rhetoric of Tom's

- 2:15 162. Marianne Brown
Apocalypse NOW: Women in the Book of Revelation
- 2:30 163. Blake Carrera
Theory and the Prison of Heteroglossia: The Possibility of the Post-Theory Novel
- 2:45 164. Katie McLaughlin
Everybody Writes: Re-Imagining Reader, Writer, and Text in the Online Community
- 3:00 165. Seve DeGrand, Dakota McDurham
SU Virtual: Creating Virtual Environments for the Future of Southwestern
- 3:15 166. Thomas Newman, Jen O'Neal
NGO Mapping: Charity at a Glance
- 3:30 167. Amber Cochran
Why Bigger May Not Always Be Better: A Comparison of Hatchling Development of Two Apple Snail Species, *Pomacea Maculata* and *Pomacea Megastroma*
- 3:45 168. Joshua Page
Double Attack on Invertebrate Bias: Theory and Banjo
- 4:00 169. Rebecca Petro
Pink Eggs I Am: The Making of a Clutch Deposit Informing the Public About the Invasive Apple Snail (*Pomacea maculata*)

Olin 226

- 1:15 170. Morgan Gribble
Confluxere Christiani: Christian Movement into Rome and the Subsequent Response in the First Century AD
- 1:30 171. Shelby Morales
Seeing Devils in the Eyes of Our Enemies: An Analysis of Demonization in American Journalism During World War II
- 1:45 172. Brianna Billingsley
Literally, My Money Comes From How Happy I Make Them: The Positive and Negative Consequences of Emotional Labor Among Restaurant Servers
- 2:00 173. Heather Burns
Helping Through Privilege: Middle Class Volunteer Ideology and Experience
- 2:15 174. Lucero Castillo
"I am not illegal, I am a human being. I just happen to be undocumented:" Collective Identity and Personal Narratives of UT Undocumented Students
- 2:30 175. Kelsey Kisor
Protect and Serve Each Other: Collective Action and Contentious Politics in a Police Accountability Organization
- 2:45 176. Tara Smith, Victoria Flores
Planning for Change in the Psychology Curriculum: Psychology Departments and the MCAT® 2015 - Survey of Psychology Departments
- 3:00 177. Daniel Jozwiak
The Influence of Minor Parties within Coalition Government
- 3:15 178. Jordan Richardson, Daryan Green, Jessica Jones, Monica Miller
Applying Sociological Research Methods Using a Community Survey
- 3:30 179. Marta Selby, John Semlitsch, Forrest Stanley-Stevens
Adjustments Following Addition: Advisors' Actions Regarding MCAT® Revisions

- 3:45 180. Lucas Grisham, Kelsey Kisor, Mitchell Petersen
Preparing for Changes in the MCAT® Exam: Opportunities and Challenges for
Sociology Programs
- 4:00 181. Nathan Tuttle
It's a Man's Man's Sport: Masculinity and Coming Out in American Football

Olin 305

- 1:15 182. Sarah Puffer
Blooming Imperfection: Exploring the Ecuadorian Rose Floriculture
- 1:30 183. Lauren Saylor
(Re)Making Self: Gender Identity Formation by FTM Transgenderists in
Amsterdam
- 1:45 184. Susana Contreras
Coloring the Ivory Tower: A Critical Race Analysis of Latino/a Graduate Student
Experience
- 2:00 185. Carly Cooper
Mercury: Making People Mad Since 210 BC
- 2:15 186. Bailey Hayes
Perceptions of Alcoholism in the Indigenous Andean Towns of Peru
- 2:30 187. Araceli Castañeda, Markie Wendel
Through the Looking Glass: Facebook Reflects IOS in Romantic Relationships
- 2:45 188. Jordan Curtis, Meredith Horning, Bryony McLaughlin, Sara Infante
Does Diversity Education Decrease Prejudice Against Disabled People?
- 3:00 189. Keeley Hooker
Keeping Austin Gendered: Male Hegemony in Austin's Live Music Scene
- 3:15 190. Allie Klein
Navigating Cancer: Oral Histories of Breast Cancer Navigators Near Austin, Texas
- 3:30 191. C.J. Martinez
The Role of Social Workers in Improving Health Care Disparities in Austin, TX
- 3:45 192. Adrienne McClendon
Buildings that Build A Community: Living Learning Communities at Southwestern
University
- 4:00 193. Karen Ramirez
Fielding Gender: Gender Performance and Identity in Women's Softball at
Southwestern University

Olin 322

- 1:15 194. José Bayoán Santiago Calderón
From Scientific Understanding to Effective Policy: Fruits and Vegetables
Consumption on Cancer Incidence
- 1:30 195. Kristen Heg
Women in Business: An Analysis of Businesses with Women Executives
- 1:45 196. Abigail Dunn
Voter Identification Laws and Future Implications
- 2:00 197. Shelby Gebhart
Sacrificing Texas: Giving Up Health, Income, and Environment for Potential
Growth

- 2:15 198. Adrian Gomez
The Impact of IMF Policy and the Expectation of High Returns from Developing Nations when in Economic Crisis
- 2:30 199. Brianna Guevara
Does Playing College Basketball Affect an NBA Career?
- 2:45 200. Isidoro Ramirez
Unbanked Hispanics
- 3:00 201. Alex Michael
Exploring the Relationship Between Economic Freedom, Growth, and Income Inequality
- 3:15 202. Leslie Ann Ramey
Medicaid Participation Among Legal U.S. Immigrants
- 3:30 203. Brooke Chatterton
The Benefits of Bilingualism
- 3:45 204. Robert Rios
The Effects of Recession and Individual Characteristics on Alumni Contributions
- 4:00 205. Allison Stubbs
The Effect of Gun Control: An Econometric Approach

SOUTHWESTERN UNIVERSITY CHORALE performance



The Armed Man: a Mass for Peace, by Welsh composer Karl Jenkins

Southwestern University Chorale
Kenny Sheppard, conductor, and Pam Rossman, pianist

Premiered April 25, 2000, Royal Albert Hall, London

The Armed Man: a Mass for Peace, by Welsh composer Karl Jenkins, has become one of the most performed choral works by a living composer. This work is a rare synthesis of the universal themes of war and peace, and it is accessible to all listeners. Jenkins considers himself to be a so-called crossover composer, using elements from both pop and classical music. *The Armed Man: A Mass for Peace* is based on a popular fifteenth-century French fight song, *L'Homme Armé doit on doubter*, or "The Armed Man Should be Feared."

Soprano

Kylie Borden
Abby Bowers
Anna Coucke
Kelsey Debner
Kati DeHaven
Brittany Donohoo
Afsoneh Esfandiari
Bobbie Hackett
Keeley Hooker *
Abigail Jackson *
Jessica Kozlowski
Bobbie Lile

Samantha Martin
Alejandra Navarro
Eryn Quinn
Avery Rogers
Kristen Samuelsen
Lai Nai Wong

Tenor

Garrett Banister
Kevin Bryant *
Jordan Curtis
Nicholas Erck
Thomas Frashier

Bass

Brandon Baker
Andrew Fields *
Paul Glasheen
Brent Hobbs
Nathan Royall
Stefan Simanton
Andrew Smith
Sean Stone-Ash
Timothy Williams
Julius Young

Alto

Sadie Clarendon
Jaimie Couch
Karla Cruz
Mary Hosch
Kinley Johnson
Rachel Kaplan
Ashley Kraft
Melissa Krueger
Courtney Nagel
Brittney Nixon *
Ashley Scott
Alexandra Taylor

* Section Leaders

PAIDEIA CLUSTER PRESENTATION

abstracts

1. Propaganda Posters during the Chinese Cultural Revolution
Representing Gender Cluster

The Chinese Cultural Revolution was a campaign initiated by Chairman Mao Zedong that mobilized junior high and high school students to foment revolution—to challenge their teachers and party officials in order to make sure that officials were being true to the mission of communism. Propaganda posters became an instrument Mao used to consolidate his cult of personality and to pursue major cultural change. In this talk, which includes audience interaction and discussion Professor Gaunder and Professor Smith (Paideia seminar leaders for Representing Gender) explore the relationship between politics and art by investigating how gender was represented in propaganda posters during the Chinese Cultural Revolution.

2. The Many Faces of Global Health
Global Health Cluster

‘Global health’ means different things to different people. For example, physicians and scientists might focus on disease etiology and the development of preventative and treatment health care. For a business person, the term might connote cost of providing employee insurance, profits from pharmaceuticals, or needs of the local communities in which the business resides. As our world becomes increasingly interdependent, we also might choose to notice the impacts of globalization on health, health provider and education guidelines, cultural perceptions of women and girls, under-funded disease treatments, individual liberties for choice about treatments or treatment methods, and socio-economic implications of well-being. The Paideia Global Health cluster will embark on a community generated conceptual map during the Creative Works Symposium. We will provide a short reading, offer brief faculty comment and then conduct an experiential exercise intended to expand every participant’s understanding of ‘global health.’

3. Jewish Migration in the Mediterranean World
Mediterranean Mingling Cluster

In this seminar, Dr. Melissa Byrnes will begin with a short introduction to the history of Jewish migration in the Mediterranean World. Following the introduction, Dr. Laura Hobgood-Oster will briefly talk about Jews in the Roman Empire. Dr. Katy Ross will present information on Jewish culture in medieval Spain, with Dr. Francis Mathieu finishing with a picture of Jews in North Africa today. After we introduce the topic from our different disciplinary perspectives, we will open to the floor to discussion.

UNDERGRADUATE RESEARCH PANEL

abstract

4. Dr. Sergio Costola, Associate Professor of Theatre
Dr. Carina Evans, Assistant Professor of English
Dr. Alisa Gaunder, Professor of Political Science
Dr. Scott McLean, Professor of Kinesiology
Dr. Emily Niemeyer, Professor of Chemistry
Dr. Brenda Sendejo, Assistant Professor of Anthropology

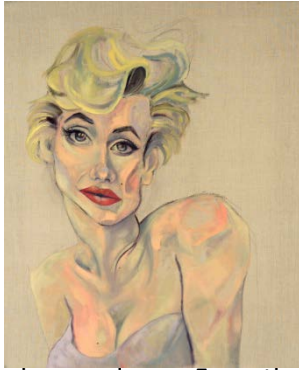
Undergraduate research is one of the most effective practices for teaching and learning in higher education. Southwestern University has a robust summer undergraduate program. Faculty and students have teamed together to present this panel moderated by Dr. Scott McLean (Kinesiology). Participating faculty are: Dr. Emily Niemeyer (Chemistry Department, Howard Hughes Medical Institute grant project director), Dr. Carina Evans (English Department), Dr. Brenda Sendejo (Sociology and Anthropology Department), Dr. Sergio Costola (Theatre Department) and Dr. Alisa Gaunder (Political Science Department). Faculty will talk about their summer projects (including laboratory research a theater project in Bulgaria, archival and bibliographic research, and an oral history project) and about what they intended for students to learn. Ms. Abby Morales, a Southwestern alumna and former student of Dr. Sendejo, together with three current students, will talk about their projects and what they learned.

CREATIVE WORKS AND EXHIBITION

abstracts

5. *Sticks and Stones*, a play
Austin Archinal, Anna Beaver, Marianne Brown, Jordan Curtis, Kathy Douglas,
Paige Duggins, Arianna Haradon, Katie Morgan, Joseph Ramirez, Tori Vasquez,
Belle Jo, Savannah Scardaville, Theatre and Social Change Class
Developed by: Ms. Kathleen Juhl

Sticks and Stones, is a play developed by Kathleen Juhl's Theatre and Social Change class in collaboration with Sarah Beauchamp's Tippit Middle School drama students. The play was developed to discourage bullying behavior by students at Tippit and was performed for the entire student body at the middle school on March 24, 2014. Material for the play was gathered through workshops with Tippit drama students and through formal library research conducted by the Theatre and Social Change students. Southwestern and Tippit students perform in the together play. There will be post-show activities and discussion after the performance on April 8.

6.  Erika Clugston
Norma Jeane
oil on linen, 2013, 34" x 28"

The portrait paintings in *Pressure Points* explore the tension between individuals as products of the culture around them and their agency in resisting it. Through my paintings I critique the societal construction of identity and the potential for subversion of ideological systems. To make each portrait I begin by researching statistics relevant to a particular individual and dealing with gender, class, and race. From these, I find the statistical facts that are most revealing about the person and his or her larger cultural context. To translate the facts into a portrait, I create a grid on a panel or canvas on which I plot points using the numerical statistics as coordinates. I then place the figure within the plotted points, distorting the figure. In the process of painting I strive to capture the individual's physical likeness and personality which give each individual agency and enable him or her to subvert cultural systems of normalization. I am entering into conversation with theorists, such as Michel Foucault, who consider the ways that institutional structures mold, enforce, and regulate the construction of normality and subjectivity. Through systematic regulation, "normality" is constructed and enforced at the level of the social experience so as to maintain the values and standards ingrained in each individual. A fully-integrated system of normalization is what I mean to question with my work. How is identity formed? How much influence do societal structures have over the individual? To what extent is the individual capable of resisting said structures and by what means? These are a few of the questions that I contemplate and pose through my paintings.

7.



Carmen Gadt
Clowning Around
oil on canvas, 2014, 60" x 72"

Nostalgia investigates the relationship between the past and present by interpreting the act of reminiscing about toys, figurines, and other childhood objects. I make large, brightly colored abstract paintings that revive mid-20th century Abstract Expressionism with a contemporary twist. Inspired by Abstract Expressionist artists such as Howard Hodgkin, Hans Hofmann, and Willem de Kooning, and contemporary artists Pia Fries and Cecily Brown, I validate the importance of childhood objects and my personal understanding of nostalgia. Various scholars view nostalgia as oppositional to progress—my paintings redefine nostalgia as a retreat to the past, a layering of present outlooks on life with personal memories. These paintings are founded at the juncture of now and then; a judgment of the past through the eyes of the present. *Nostalgia* invites a longing forged in the dissipation of simplicity as innocence is lost. At the heart of each of these paintings is a prized possession from my childhood that would have been seen by renowned art critic of the 1940s, Clement Greenberg, as “kitsch.” Seeing my belongings in this light causes inner conflict, because it strips away the validity of their importance and individuality. By adding personal insight and hidden complexity, I synthesize abstract expressionist language with common objects and call upon the viewer to reconcile the ironic combinations presented in this series.

8.



Sarah Loraine Kinney
Look! You can't even see them
oil on canvas, 2014, 11 3/4" x 7 7/8"

“Selfies”, a series of self-portraits, is inspired by photographs taken with Snapchat. In this social media app, users chat with each other using images overlaid with text, that are viewed for one to ten seconds before being deleted. Since 2011 I have sent and received over 4,500 ‘snapchats’ which I view as contemporary self-portraits, holding conversations with everyone from dear friends and crushes to acquaintances and advisors. Studying the collection of snapchats I sent during the past year through an academic lens revealed that each selfie was meticulously constructed to present a specific version of myself. Each selfie portrays a different persona, which psychologist Dr. Carl Jung asserts is the mask or appearance one presents to the world, and is a reflection of one’s current environment. For example, I display one persona to close female friends, while a distinctly different persona is presented to potential love interests. Examining each snapchat out of its original context uncovers the complex relationship that exists between imagery and text. Snapchats in which the text and image are non sequiturs prompt the viewer to create a narrative that brings the two together, which evokes the theories of Ferdinand de Saussure, the father of semiotics. This effect is reminiscent of the “Disasters of War” print series, by Francisco Goya, in which each print is accompanied by text that cannot be reconciled easily with the image. “Selfies” expands on this precedent, using the historical weight of painting to call contemporary cultural values and practices into question.

9.



Thunderbird Mask
Lydia Au, Theatre Department
Sponsor: Desiderio Roybal

The Kwakiutl of the Pacific Northwest traditionally carve their masks from cedar wood during the winter months. The masks represent monsters and ancestral figures, and are seen in dances and ceremonies in which those figures appear. The thunderbird is a mythological creature that is seen across almost all Native American cultures, and is identified by its curved horns. In the Pacific Northwest, the thunderbird is a hunter of killer whales, and carries under its wings serpents that can shoot out lightning bolts. Some Kwakiutl tribes trace their families back to a mythological ancestral figure. In the case of the thunderbird, the family of the chief usually lays claim to the thunderbird as an ancestral figure.

10.



Apostate Monk
JoLiza Barrera, Theatre Department
Sponsor: Desiderio Roybal

This is an Apostate Monk mask, also known as the Wayward Monk. This is just one of the many characters that is a part of Talchum, a regional dance that comes from Korea. The yellow eyes represent jaundice and the white dots represent all of the sins of this character. Talchum literally means mask dance and was used in a variety of ways to express culture. There were the dancers of the farmers, the urban dance of the merchants, the vagrant dance of the wandering entertainers, and shaman rituals. At a time when Confucian principles were being pushed upon the people, these masks helped in keeping the community united and helped to create a way to act out their aggression.

11.



Noh Mask
Taylor Braselton, Theatre Department
Sponsor: Desiderio Roybal

Japanese Noh theatre began as a popular art form for the lower classes. It originated during the late 1300s under the patronage of Japan's supreme ruler Shogun Yoshimitsu. However, it was under Zeami Motokiyo that it was refined to a more aesthetic preference to appeal to the elite upper class. The Noh mask principle focuses on the subtle and composite emotional expressions. It can convey countless different facial expressions by the slight change in the angles of the head and body orientation. For example, the upward tilt of the face gave the eyebrows and mouth sad expressions while the eyes translated happiness.

12.



The Columbina Mask
Rachel Ehler, Theatre Department
Sponsor: Desiderio Roybal

The Columbina mask originated in Venice, Italy in the late 15th century, and is named after a stock character in the Italian theater known as Commedia Dell'arte. The mask design was originally taken from the Bauta, which is the full-face mask it was derived from. An actress who played the stock character Columbina did not want her beautiful face hidden behind a full mask, and ordered the half mask created. The mask allowed actors to easily become numerous characters and add an element of mystery as to their identity. It became a popular mask used in theater performances and eventually spread all over the world for personal and professional use, nowadays seen even in events such as Mardi Gras and masquerade dances. Initially a base was made from leather, porcelain, or with a glass technique, but this mask is made from a premade paper base that was primed for the addition of paint and various accessories.

13.



Mayo Indian Festival (Pascola) Mask
Zachary Finger, Caroline, Theatre Department
Sponsor: Desiderio Roybal

The Mayo people are an agricultural-based tribe native to the Northwestern part of Mexico. Culturally, the Mayo Indians have a unique blend of tribal rituals and Catholicism due to the Spanish. Today, the Mayo Indians can be seen practicing such beliefs in their "Cycle of Fiestas." Each ceremony revolves around a central person known as the pascola, who wears this mask. The mask comes in various forms; however, each keeps the same theme in which both tribal and Catholic aspects are represented. Although the mask itself isn't considered sacred, the pascola takes great pride in leading festivals, and is generally well known throughout the Mayo community.

14.



Transylvanian Folk Mask
Caroline Gaspard, Theatre Department
Sponsor: Desiderio Roybal

To this day, abundant religious and secular festivals fill the calendar of Romanian culture. One such festival, Festivalul Datinilor de Iarna, takes place every December 27, right between Christmas and the New Year celebrations. Translated to English literally as "Winter Customs Festival," this celebration serves as a mixture of religious Christmas traditions and secular celebrations heralding the New Year. This festival originated and is primarily celebrated in the region historically referred to as Transylvania, in the northwest part of Romania. Revelers in the parade wear traditional clothing of the region, with mostly men wearing large, human-like masks. This mask of a female face, is traditionally made of wood and cloth. This replica is crafted out of plaster and felt, a modern twist.

15.



Sri Lankan Kolam Mask
Nicol Hurst, Theatre Department
Sponsor: Desiderio Roybal

The traditional Sri Lankan drama of Kolam has a rich history that is said to have spanned over 2500 years. Kolam, meaning "representation" or "a figure very much out of the ordinary" in Tamil, is distinguished most notably by its masks. These masks typically represent stock characters that are featured in every Kolam play: A King, a Queen, soldiers and villagers, and a variety of gods and goddesses, demons, and mythical creatures. The typical nature of each character is brought out on the mask itself by the intricate arrangement of lines, shades, and paint.

16.



Anubis Mask– Keeper of the Dead
Andrea Lee, Theatre Department
Sponsor: Desiderio Roybal

In ancient Egyptian times there was a god by the name of Anpu, later re-named by the Greeks to Anubis, who watched over the dead and assisted them in the afterworld. Egyptian priests wore the mask of Anubis while performing funeral rituals such as "Opening of the Mouth," when all senses were restored to the mummy. Anubis was considered the guardian of the dead and was said to protect their souls as they made their journey into the underworld. Recent studies have found the head more closely resembles the ancestors of the grey wolf versus the jackal that was the initial theory. The Anubis mask was often made from a cardboard-like material then covered with layers of linen and papyrus, stiffened with plaster and then painted.

17.



Xacalcojé Mask
Dakota Skinner, Theatre Department
Sponsor: Desiderio Roybal

The Xacalcoje Mask is a big part of the culture and tradition of Guatemalan Easter. The mask is worn by the Xacalcojes who are a community of believers and have been performing this dance for many years in and around the area of Totonicapán, Guatemala. The Xacalcojes are people of Mayan descent. These people combined Roman Catholicism with Mayan cosmology, deities, and domestic rituals. Easter masks from this area are worn by participants who at first express sadness because of Christ's death, but then later dance around a fruit and flower adorned arch rejoicing about His Resurrection and sharing fruit with the audience. These masks rely on patterns carved into the wood for expression and artistic effect, not on color. The mask itself is 8.5 inches and made of wood.

18.



Nahuatl Death Mask

Matthew Zagurski, Theatre Department

Sponsor: Desiderio Roybal

The mask I picked comes from the Nahuatl, or Aztec, dance called, "La Danza de los Tres Potencias." This dance is held on September the 8th, the Feast of the Virgin Mary?

This dance can be translated to the "Dance of the 3 Powers" and is used to teach the people about morality. The dance is about the balance of Good and Evil with Death coming out as the winner because in the end he takes human life. The three characters on the side of Good are Memory, Understanding, and Will or now represented by the Virgin, the angel, and Christ. On the side of evil is Sin, the Devil, and Death. These specific characters were used to educate the natives of the Spanish sense of morality while tying in to the Aztec belief of death to help unify the belief system of the two cultures. The specific mask I picked represents Death and is generally made out of wood with real animal teeth. It is then painted white with black accents and is meant to signify the skull.

19.

The Perfect Glaze: Using Evolutionary Computing to Format the Most Aesthetically Pleasing Glaze

Taylor Hutchison, Victoria J Hutchison, Physics Department

Sponsor: Dr. Steven Alexander

Using evolutionary computing, a coding algorithm which evolves on its own when certain characteristics are inputted to eventually form an ideal solution, along with aesthetic decisions from the artist, we plan to formulate and create our version of a perfect glaze for ceramics. In order to reach this goal, we will start with the basic formula for a common glaze and begin manipulating the characteristics based upon what is possible for the glaze and what is aesthetically pleasing to most individuals; these glazes would then be fired on test tiles and displayed for careful observation and a further narrowing of the evolving formula.

20.

Reverse Osmosis Water Filtration System

Oliver Sale, Hector Posadas, Evan Jones, Physics Department

Sponsor: Dr. Rebecca Edwards

Water, the single most important element to human survival is also the most difficult to find. Drinkable water consists of only about 0.007% of all water present on Earth, and much of that small percentage is contaminated with pathogens and bacteria. Thus, many techniques and methods for purifying water have arisen. Currently the most effective process for water purification is that of reverse osmosis (RO). Unlike other techniques that require heat, light or electricity, RO simply relies on a very fine filter and water pressure. The only downside to RO is that the membrane can easily be worn down with improper and over use. However, since the only thing required for the RO filter to work is PSI a simple mechanical pump could power the entire system, no electrical components required. Such a simple system, with only a mechanical pump and RO filter, could potentially be packaged into a small space the size of a large suitcase. The goal of this project is to create said system and compact it into the smallest functional size possible, a water filtration system that can be easily transported and operated by a single individual.

21. Mapping the Zenas Matthews Diary
Caitlin Schneider, Environmental Studies Program
Sponsor: Mr. M. Anwar Sounny-Slitine

The Mexican-American War was of extreme significance in shaping the formation of the United States. During the conflict, a soldier by the name of Zenas Matthews kept a diary detailing his experience throughout the war. The diary offers insight into Matthew's experiences in the First Texas Mounted Rifleman and details several integral events such as the Siege of Monterrey and the taking of Bishop's Palace. This research developed a Story Map through AcrGIS.com which details Matthew's journey through the Mexican-American war, using the diary as a primary source. A Story Map uses Geographic Information Systems (GIS) to provide a platform that displays information and visual content to allow the reader to gain a greater understanding of the material.

22. Development of a Lighted Flat Field Device for the Fountainwood Observatory
Kyle Zarosky, Brandon Behrens, Clayton Sparks, Physics Department
Sponsor: Dr. Rebecca Edwards

For our Creative Works Symposium project titled "Development of a Lighted Flat Field Device for the Fountainwood Observatory," we are building a funnel like object to cast a bright light upon a plain background in order to find imperfections in the telescope lens. After locating the imperfections on the lens, we will then take a picture through the telescope of the plain background. This picture will reveal the imperfections on the lens, which will then be compared to any pictures of the sky making it possible to digitally remove the imperfections from pictures of the sky. The blank background will be surrounded by a ring, which will be drilled to four fasteners that will be adjustable and easy to set up and dismantle. After the ring is constructed, four steel beams will be welded to a steel ring approximately 16 inches in diameter creating a funnel shape. Attached to this outer ring will be a filter that will be a background to cast a light up on thus revealing the imperfections in the telescope lens. Our device will make it possible to have more clear and accurate pictures taken through the telescope.

23. Solar Lounge
Amir Ardjomand Hessabi, Seve DeGrand, Keeley Coburn, Physics Department
Sponsor: Dr. Steven Alexander

Do you ever want to study or hang out outside but you're worried that your mobile device will run out of battery? These solar powered lounge chairs convert the sun's energy to electricity to power your cell phone or laptop. Simply plug your charger into one of the outlets on the chair and let the sun naturally charge your device to full capacity while you study, nap, or enjoy the weather. The chair will have a display gauge that tells the user how much solar energy that specific chair has left. The lounge chairs are ergonomically designed and have a flexible sheet of photo voltaic cells on the top to capture sunlight. The user can sit in the chair lounge, which sits above the ground, in multiple ways and still be comfortable. There will be three to five of these lounges placed at an area of campus in a circle so that multiple students can take advantage of the charging stations. If more people come, a splitter or surge protector can be brought to add more chargers. Ideally, a large group of students can come and sit on the grass and in the lounges while doing homework, charging devices, and enjoying one another's company. The design is inherently beautiful and will add a natural, artistic aspect to Southwestern's already beautiful campus. The lounges will blend in with the surrounding area while also adding a touch of modern charm. More importantly, the chairs provide the campus with a renewable

option for charging their devices that remains off the grid where coal power and other nonrenewable energy sources provide electricity.

24. Warm of Heart: A Visual Story of Rural Thailand
Anne Bannister, Art and Art History Department
Sponsor: Ms. Mary Visser

I spent the fall of 2012 interning at Warm Heart Worldwide, a grassroots organization located in an impoverished region of rural Thailand. Warm Heart's mission is the creation of sustainable community development through programs relating to health, microenterprise, and education. The Warm Heart Children's Home houses 40 children from isolated Hill-Tribe villages that are either without access to education or under threat of violence from drug and child trafficking. The Children's Home is a thriving community where the innocence of youth is protected and children are taught critical life skills that will make them competitive in a modern world. During my six-month internship, I fell in love with the kids, the surrounding community, and the meaningful, successful work of this organization. I have constructed a photography and mixed media exhibition that immerses the viewer in a visual story about rural Thai culture, invites viewers to draw comparisons between cultures, initiates discussion about the perils of regional based poverty, and advocates for Warm Heart's mission of sustainable community development. My work presents a glimpse into the every-day life of the girls and boys at the Children's Home. Photography, video, everyday objects, and edibles are used to create a multi-sensory experience for the viewer to connect directly with the subject. For the Creative Works Symposium I will pull the most effective of these installation pieces to share a story of the people of impoverished northern Thailand – and the hope that is being brought to the region by the creation of new opportunities.

25. Fantasy Art in a Leadership Perspectives (Business) Class?
Dyana Shearer, University Relations Department

I am submitting an original artwork entitled "The Snowcat" that I completed as an aesthetic performance requirement for Dr. Don Parks' Leadership Perspectives class several years ago. This course utilized a 1000+ page fantasy trilogy, *The Deed of Paksenarrion* by Elizabeth Moon, to mobilize theories, methodologies and principles of leadership from *The Leader's Companion: Insights on Leadership through the Ages*. While I enjoy epic, world-building fantasy, I never regarded it (excepting Tolkien) as anything but "summer trash" reading. Little would I have guessed that one might find within this fiction such rich evidences of modern theories of leadership practices, leader/follower models, organizational influence and the moral and ethical considerations inherent in leadership dynamics. I submit the art piece less for its artistic merit and more as a testament to the nature of the liberal arts. As a non-traditional student taking two courses a year, I have found it difficult at times to make the connections between individual classes, departments and extracurricular activities that become so evident within the context of a full-time course load. This class, outside my major and elected on a whim, encapsulated that experience for me, and encouraged me to see the intertextuality of my coursework, my career, and my personal pursuits in a new, interdisciplinary light. Additionally, considering myself anything but an artist, this colored-pencil drawing which represents a pivotal moment in the novel, was a definite stretch for me—a risk I'm glad I took.

26. Unspoken Words
Xan Koonce, University Relations Department

"Unspoken Words" is a multi-media painting of ink, oil and graphite on canvas. I combine the random actions of painting with controlled, deliberate mark-making in an effort to describe each form, oftentimes appearing like floral or plantlike structures. I'm interested in exploring the relationship between nature, humankind and spirituality and further identifying the commonalities. The desire to look beyond the literal within my surroundings and to further understand this relationship and its transformational power drives my work as I further my exploration. We live in a world where we are encompassed by forces of constant negativity that is oftentimes exhibited through the media, social settings, etc. Just as important, we entertain these negative thoughts oftentimes unaware. Therefore, my primary interest is to convey an aesthetic experience through pure qualities of color, line, texture and composition and for my art to be a force for all that is positive, inspiring and beautiful. My artistic pursuits stem from a passion for beauty and a reverence for the power that beauty has to transform life.

27. Our Spineless Heroes: An Unlikely Tale
Catherine Cerna, Biology Department
Sponsor: Dr. Romi Burks

Invertebrates dominate virtually every global ecosystem in terms of species richness, biomass, and ecological function. They constitute 96% of all animal species (excluding protists) (Brusca and Brusca, 2003), represent pervasive elements of every food chain and provide countless services for our ecosystem. However, humans tend to view invertebrates with fear, avoidance and ignorance. Threats to invertebrate biodiversity continue to drive many of these species to near extinction. Furthermore, "vertebrate bias" severely hinders efforts to conserve invertebrate species. As a project to make Paideia-like connections outside of Invertebrate Biology class, I plan to illustrate how invertebrates connect to our daily lives and earn certain value. I will draw a series of black and white comic strips showcasing the different ways that invertebrates contribute to the ecosystem, yet remain severely underappreciated. In at least 20 different panels, I will anthropomorphize seven different species of invertebrates and illustrate the different jobs they perform in our environment. The main storyline will be a ladybug going around town and crossing paths with different invertebrates doing their everyday jobs. For example, I will show a bee making honey as a chef and a snail decomposing waste as a garbage man. Hopefully, using a medium such as a comic strip will make the information more compelling than traditional means of science communication, as well as making invertebrates more relatable to humans thus increasing efforts to conserve them. Doing all of the work and getting none of the credit, invertebrates are truly the unsung heroes of our environment.

28. Up-Hill Assist Self-Powered Bicycle
Stephan Meyer, Zach Whitlock, Jonathan Kissner, Austin Barber, Physics Department
Sponsor: Dr. Rebecca Edwards

Efficiency and effectiveness are two of the main factors when considering transportation. Perhaps one of the cheapest, most efficient and effective ways to get around (in the city) is by bicycle. The problem, however, is the struggle with up-hill treks while biking. Often times, hills are too steep to climb without struggle and pain. Our idea and incentive is to find a way to create a bike that will assist with up-hill biking, and will require no charging (powered by pedaling). Such a device already exists (complete with smartphone integration), but is priced at roughly \$800. We decided that was a bit exorbitant, and that we could make a much more

affordable, more barebones version. In order to accomplish this goal, we looked at a small-scale electric motor. These motors draw energy from a power source and in turn rotate in one direction. But if the motor is turned in the opposite direction, there is power generated from the motor itself. Using this knowledge, we determined that placing an electric motor (for the smaller scale) against the wheel of the bike so that it turns in the opposite direction that it was designed for will generate power when the bike is in forward motion. The electric motor would be fastened to the wheel so the friction between the metal and the motor would turn it. The most important thing that we realized is the fact that the bike wouldn't be electrically powered, but would be electrically assisted. We wanted the motors to be inconspicuous and not too bulky so that the bike still looked aesthetically pleasing. The bike we are creating promotes a healthy lifestyle as well as being a more efficient form of travel that saves money and limits pollution while being affordable.

29. The Mobile Inductive Charger (M.I.C.)
Eric Rodriguez, Kelsey Kingston, Physics Department
Sponsor: Dr. Rebecca Edwards

When we started with our project, we knew of a device that would be able to harness the kinetic energy of a person in motion and use that energy to charge a phone. This sparked an idea with our team; why not take that same idea of harnessing kinetic energy and use that towards another problem? The problem for us was that we wanted to come up with a way in which a user can charge their phone using a charging pad in a car. By eliminating the need for multiple cords that charge different devices that cause distractions on the road, the driver could focus more on the road. By combining these two ideas, we came up with the solution of harnessing the kinetic energy caused by the motion of the car to power a charging pad located on the dashboard of any car. In order to accomplish this goal there are multiple ways in which this project can be done that our team is going to test. Although the original idea of a way to harness energy came from the nPower Peg, which collected its energy from movement, we also wanted to test the idea of harnessing energy from a heat source within the vehicle. We will conduct an experiment in which data will be collected using an accelerometer to measure kinetic energy and thermal electric power modules to measure thermal energy. This will verify for our team which harnessing method produces the most energy. The two devices will be placed in various locations on the car to determine which would produce the most energy. The car will travel along a route, common to other drivers, to test the most efficient placement for either the kinetic module or the thermal module. The preplanned route will include various speeds, speed bumps, and uneven and even roads. Having a route that features multiple conditions will allow us to collect broader data. While our results are not final as of yet, our team hypothesizes that when the thermal electric power modules are attached to the exhaust pipe it will create the most amount of energy compared to the other methods. We believe that this will be the new way to collect green energy in order to charge our devices and provide a safer environment for fellow drivers.

30. Experiencing Geometry
Isabella Ferranti, Ally Mijol, Andrew Josefchak, Elise Hernandez, Physics Department
Sponsor: Dr. Rebecca Edwards

We wanted to find a way to get people to physically interact with the natural world and the laws that govern it, in order to provide people who might lack an outlet for scientific inquiry with a sense of the visceral, tangible nature of the study of physics. To accomplish this, we propose the construction of a set of three hollow objects, large enough for a human to walk around in, as

well as a display outlining how their shapes interact with surfaces. The first will be a sphere, to provide a baseline for movement within an object. The second will be a messier tetrahedron, which looks very different from a sphere but moves similarly. The last object will be an egg-shaped structure which will demonstrate that an object can be visually similar to a sphere but move very differently. We hope that these structures will teach participants how geometry informs and manipulates movement. Once the exhibit has been in place for some time, we will be able to evaluate how well it works as a teaching tool and how participants respond and are (or are not) engaged. At a broader level, this project relates to issues of science education in America, what is wrong with it, and how it can be improved.

STUDENT PANEL abstracts

All Student Panels are sponsored by Dr. Timothy O'Neill, Political Science Department

31. Institutional Corruption: A Perpetuator of Human Rights Abuses in China
Ashley Johnson

The human rights abuses that occur in China are widely known. Spending eight months in China and researching several of these abuses in detail led to my research question: Is the corruption in the Chinese Communist Party the independent variable that influences the vagrant human rights violations? The thesis that will be tested in this paper is that the Chinese system of communism perpetuates political corruption, which leads to blatant human rights violations. An institutional analysis and consequentialist ethical theory will be used to assess the proposed thesis. Three cases studies will be used to portray the institutional corruption that perpetuates these abuses: the 2008 Tibetan riots, forced abortions resulting from the One Child policy, and human smuggling. It is important to address the lack of political ethics and its effects on Chinese citizens because it also reflects on the legitimacy of American and other nations' foreign policy.

32. China's Hydropower Policy According to Mill's Utilitarianism: an Ecological Disaster or Solution to the Pollution Crisis?
Laura Meitz

This paper explores whether China's plan to dam the Nu River, despite ecological consequences, is justified by Mill's Utilitarianism. The paper uses a combination of institutionalism and historical policy analysis in order to determine the potential costs and benefits of building a dam on the Nu River. Due to pollution from coal, China is in need of an alternative source of energy, such as hydropower. However, this would mean damming rivers in some of China's most ecologically diverse regions, such as Yunnan Province.

33. Ethics of the Chinese One Child Policy and Relevancy in Modern China
Cheyenne Wooldridge

Was implementation of the One Child Policy morally legitimate in the historical context of the Great Leap Forward and great famine only a few years prior? This question leads into two additional topics. First is how ethical and political values of Chinese society have affected acceptance or rejection of the policy. Second is how modernization has changed societal values in the decades since. The main approach to exploring these questions will be ethical consequentialism, more specifically the utilitarianism of both Mill and Nietzsche. Key features of my discussion will be situational/cultural context, political ethical obligations, and ends justifying the means, political paternalism, and modernization. Using socio-historical analysis, institutionalism, cultural analysis, and comparative analysis as research methodologies, this exploration will lead us to understand whether or not the policy is still relevant in modern China. This is significant for Chinese policy makers and researchers as it can affect future policy decisions.

34. The European Court of Human Rights and Kantian Ethics
Ashton Sharp-Lucas

The United States continues to implement the death penalty as an acceptable means of punishment within its borders, despite strong international opinion that the death penalty is an outdated option that should be abolished. In the European Court of Human Rights, judges justify their refusal to allow extradition in cases where the death penalty is involved, based on the Kantian principles underlying the European Convention on Human Rights treaty. Using a legal analysis on the basis for judicial decisions, I will try and show how Kant's ethical standards apply to each case's outcome, providing the judges with a clear institutional justification for their actions.

35. Why Johnson and Not Kennedy? The Efficacy and Ethics of Tactics used in the Push for Civil Rights Legislation under Lyndon Baines Johnson
Julie Jespersion

Often people speak of the Civil Rights Act of 1964 as if it became law because it was an idea whose time had come or because law makers acted based on their consciences. These explanations are not sufficiently explanatory. Why did a bill that appeared to be dead on arrival in House of Representatives under President Kennedy pass so quickly under President Johnson? I sought to discover exactly what methods he employed, discern their efficacy and ethics, and find out if his methods were the reason the 1964 bill passed. I will use the agency/actor method of explanation in explaining how The Civil Rights Act of 1964 became law. I plan to compare the results of the two presidents' efforts in the effort to defend the agent/actor perspective. Additionally, using the consequentialist perspective and criteria set forth by John Stuart Mill's utilitarianism, I determined if Johnson's methods were ethical. President Johnson's unique brand of politicking that he had developed over years of legislative experience was the catalyst that ensured the bill's passage. What does this result say about our culture's social and political ethical values? Was the greater good achieved by passing the bill enough to outweigh the dirty tactics and seedy methods used? Specifically, did the ends justify the means in regard to the civil rights legislation?

36. Personal Relationships and Political Ethics
Laurn Deering

In my research, I will be asking what the ethical implications and issues presented by the personal relationships of political leaders and their effect on policy? Through analyzing the personal relationships between the UK prime minister and the US president, specifically the Reagan-Thatcher and Bush-Blair relationships, I hope to determine how influential personal relationships tend to be in political matters. I will focus on the Falklands War and the Iraq War in order to illustrate the importance personal relations can have not only domestically, but internationally as well. In order to accomplish this, I will implement empirical and comparative historical analysis. This research will help to depict the importance of personal relationships between political leaders and its influence on policy.

37. Work-Family Balance: A Comparative Case Study of Spain and Germany
Meg Greenfield

Today in Spain, more women than men possess university degrees. In Europe and the United States, the level of education attainment has been dramatically increasing for women over the

last several decades. This fundamental shift in Western societies has led to increased female workforce participation. However, women pursuing careers still face significant obstacles, specifically women who wish to simultaneously participate in the workforce and have children. Research suggests that despite the increasing number of Spanish women with university degrees, the number of women who both work and have children is small in comparison to other European countries. This research project seeks to establish parental and family support policies as the variables that increase female workforce participation. I intend to show that the presence of family policies, which provide support for working mothers, determines the options available for women in terms of balancing career and family. I also expect to find that the lack of family policies in Spain have caused the static female workforce participation rate, despite the increase of women who earned university degrees. My research question investigates the cause of this dichotomy between work and family. In addition, I seek to determine the causes behind the Spanish and German government's family policies and whether those causes be cultural, historical, or ideological.

38. Gender Equity in Argentinean and Chilean Politics
Lily Welborn

The number of women in Latin American governments has increased steadily within the past three decades (Wolchik & Jaquette 1998, 3). Specifically, how has the increased representation of women in Argentinean and Chilean political institutions impacted their respective legislative priorities since 1973? Held's ethical theory of care and justice is central to the research in that it argues for the meshing of what is traditionally known to be the masculine 'public' realm dominated by justice, and the feminine 'private' realm informed by care (Held 1995, 130). The distinction between the two realms represents a political dichotomy that reinforces gender-based discrimination in the legislative environment. Argentina and Chile in particular provide rich subjects of study due to their history of state-sponsored violence, their fairly recent process of re-democratization, and their geographical proximity. My research design will be a comparative analysis, utilizing a most-similar systems design. This project will help organize and clarify empirical data that will shed light upon the implications of gender equity in politics in Argentina and Chile.

39. Ethics and the Media: Anything for the Scoop?
Stephen Holloway

Should journalists be unethical in order to expose unethical behavior by presidents according to the Mill's theory of Utilitarianism? Journalists sometimes do things considered ethically questionable, such as lie to sources or monitor politicians in their private life, in order to expose unethical behaviors. Understanding when this is and is not acceptable helps to guide not only journalists in their practices but the public in highlighting what is and is not worthy of extreme measures to expose. Using Mill's Theory of Utilitarianism and Most Similar cases method of comparative analysis, I will explore the Watergate scandal and the Lewinsky-Clinton sex scandal to provide examples of different ethical violations and their exposure by the media. By using these two cases that differ only in the type of violation, political corruption versus personal scandal, I will show the ethical obligation journalists have to serve the greater public good, sometimes using extreme measures.

40. Negativity, Virility, and Democracy: How the Tone of Political Campaigns on Social Networking Sites Impacts Youth Political Participation in the United States
Eleanor O'Neil

How might the tone of campaign messages on social networking sites affect the level of youth voters' exposure to and engagement with political campaigns and causes? Building on existing scholarship on the effects of negative campaigning and on the growing importance of social media as a component of campaign strategy for engaging youth voters, this study will examine how different messaging tactics used by political campaigns on social networking sites impact the level of youth political participation in the United States. Through a statistical analysis of data from the 2008 and 2012 presidential elections, this study will determine if and how the tone of campaign posts relates to their virility, which can indicate both exposure and engagement. This study will interpret these findings in the context of previous literature on how social networking site interactions impact overall youth political engagement. Because of the importance of political participation in liberal democracy, the findings of this study will provide a basis for an ethical evaluation of how the tone of campaign messages may impact the democratic quality of the U.S. political system.

41. The Nuclear Taboo that has Develop Through Nonuse of the Atomic Bomb during the Cold War
Scott Kelly

I will be analyzing how the fear of nuclear warfare was the leading factor in preventing the use of nuclear weapons during the Cold War. By looking at examples of when the United States and USSR choose not to use the bomb when it could have been useful, I will show how this strengthens the norms and taboo surrounding the use of nuclear weapons. The independent variable is the fear of nuclear warfare and I will look at how this affects the stigma around the bomb. I will also be applying ethical theory to show how that plays into the nuclear taboo.

42. Significance of the Civilian-Military Relationship in the United States
Bailey Olderog

This paper will examine the transition from a conscription military to an all-volunteer force and how that has influenced the civilian-military relationship. Arguably, that relationship plays a role in the ethically difficult decisions U.S. political leaders have to make concerning their armed forces. This will be done through an attempt to answer the following question: Is the change from the draft-based military of the Vietnam War to the all-volunteer based military of Operation Iraqi Freedom (OIF) and Operations Enduring Freedom (OEF) responsible for the loss of mass political activism in response to military decisions that was so prevalent during the Vietnam War – e.g. the mass protests against the use of the draft and war in Vietnam versus the general lack of response to the stop-loss policies employed during OIF/OEF? Using a most similar comparative analysis, this paper will look into prevalent literature and current discourses on civil society's connections to the United States military forces during these two periods of military conflict. As a country we need to look closely at the possibility of a growing divide between the civilian population and the all-volunteer force that fights to protect it. Fostering a relationship of compassion and ethical responsibility between the two will encourage society to demand that decisions made surrounding the military are done fairly and openly.

PECHAKUCHA 20x20 TALK abstracts

All PechaKucha 20x20 Talks are sponsored by Dr. Christina Bowers, Biology Department

PechaKucha, the Japanese term for the sound of conversation (“chit chat”) began in Tokyo, back in 2003. The PechaKucha order is to prevent speakers from droning on and on. The PechaKucha format has restrictions: namely, 20 slides, on display for 20 seconds each. Because of this constraint every single Pecha Kucha presentation, regardless of speaker or topic, is exactly 6 minutes and 40 seconds in length.

43. Turning a Blind Eye to Trachoma: Addressing Infectious Blindness
Nicoletta Memos

Trachoma is one of the leading causes of infectious blindness worldwide, infecting mostly women and children living in tropical developing countries such as Sub-Saharan Africa, countries in the Middle East, the Indian sub-continent, and Southeast Asia. If left untreated, Trachoma can lead to reoccurring infections and conjunctiva scarring that cause the eyelids to turn inward to scratch the cornea; eventually leading to vision loss and blindness. Although there are treatment options currently available, no approved vaccine exists for Trachoma, and the development of a vaccine is crucial in order to greatly reduce the prevalence of Trachoma worldwide.

44. The Effects of Population Movement on Neglected Tropical Disease Transmission
Emilie Evans

Neglected tropical diseases are a very important, and unfortunately unknown, issue. Transmission is generally associated with conditions such as contaminated water or unhealthy living areas. However, population movement, due to reasons such as refugees, conflict, or migration, may have a strong effect on the transmission of many of these neglected tropical diseases.

45. One Bug, One Bite, One Life
Katie Ferrick

“One Bug, One Bite, One Life:” Chagas disease is but one of 17 neglected tropical diseases and afflicts as many as 10 million people in the world. Despite this huge global presence, there are only two standard treatments for Chagas, neither of which is wholly effective or without dangerous side effects. This presentation will explore the current difficulties in treating Chagas disease and the preexisting barriers that have deterred the creation of more effective medications.

46. Under the Sea: The Effects of Pathogens and Zoonosis on Declining Reef Systems
Amber Cochran

Destruction of the world’s coral reefs endangers the more than 25% of all marine biodiversity which resides in these disappearing ecosystems. While the effects of global warming, rising CO₂ levels, pollution, and overfishing on reef systems are becoming more prominent, the effects of infectious pathogens on reef systems and its connection to reef diseases are only beginning to be studied. Many common pathogens and epizootics found in infected systems are related to devastating coral reef diseases such as White Syndrome and Yellow Band Disease. The Elkhorn coral species *Acropora palmata*, a major reef-building coral in the Caribbean, has suffered

reduction of 85-98% between 1980 and 2000, largely due to White Band Disease and reverse zoonosis of a human pathogen *Serratia marcescens*. Understanding how pathogens instigate disease spread among reef systems will facilitate a shift towards combating these diseases and preserving reef systems worldwide.

47. Plant Immunity Mediated Through siRNAs and Symbiotic Relationships
Kron Heilman

A recent study has expanded on discoveries such as miRNA mediated auxin signaling (Navarro 2006) by finding a siRNA that represses a PPRL protein which negatively affects a disease resistance gene RSP2 (Agarwal 2006). Angus (2014) shows that certain symbiotic *Burkholderia* species whose study was halted due to pathogenic effects in humans are non-opportunistic and can supplement crops lacking fertilizers. These two findings can be intertwined where plant gene expression can affect symbiotic nitrogen fixing nodules in legumes when they produce nitrogen oxide which can be both toxic and used in the conversation between plant and microbe (Boscari 2013). Increasing population demands high yield, low danger crops using the least amount of fertilizer and materials. Genetic defenses in plants and symbiotic relationships can be very cost effective once fully understood. This is a new area of research in plants as some advances were stagnated by pathogenic properties of some symbiotic species and genetic technologies not being fully developed.

48. The Final Frontier: Bacterial Growth in Space
Shelby Love

As the space program focuses on potential space colonies, one of the major problems it faces is the increased virulence of bacteria in zero gravity. Bacteria grown in space has been shown to have increased biomass and an increased number of viable cells. This, coupled with the astronaut's impaired immune system, could lead to disaster in space colonies.

49. From Smog to Microorganisms in Beijing and Why it Matters
Megan Pope

The spread of respiratory disease and allergens is believed to be a part of particle matter (PM) air pollution in Beijing. Another factor in the pollutants is the appearance of microorganisms in heavy pollutants, nonpathogenic and pathogenic. Though earlier evidence suggested that the appearance of microorganism in pollution were mainly those of nonpathogenic species, Cao and colleagues determined using 16s rRNA sequencing that the heavier the pollution the more pathogenic species appeared.

50. Interaction Between Gut Microbiota and Brain
Melva Maldonado

Research has shown that gut microbiota are critical to our health, as changes in the composition of gut microbiota can leave us susceptible to diseases such as gut inflammation. Now, research has turned to the complex interaction between the gut and the brain. Through experiments with germ free animals, animals exposed to pathogens, antibiotics, and probiotics, scientists have found a possible link between the gut microbiota and anxiety, pain, and many other cognitive processes.

51. Celiac Disease and Potential Microbial Influence
Terra Stefaniak

The only treatment of the Celiac disease presently is the gluten free diet. A gluten free diet means complete avoidance of foods such as pastas, bread, cereals, and even oatmeal. I've found interesting scientific findings that, given more time and development, may lead to more treatment options for celiac disease patients.

52. Gut Microbiota Shifts as a Factor in Diabetes Progression
Claudine Reyes

One of the most prevalent chronic endocrine disorders, Type 2 diabetes, has often been thought to be influenced largely by genetics and life style choices. The gut microbiota and shifts in its composition has gained some attention as being a potential factor in the progression of diabetic glucose control. Greater research into the relationship between microbial shifts and diabetes could result in new diagnostic methods to identify those at greater risk and new methods to manage the disease.

53. Antibacterial Properties of Common Plant Extracts and Oils
Mirabella Alfaro

Studies have found that oils and extracts of plants of common household spices have antibacterial properties against a number of pathogens. A few of the tested oils and extracts were found to have high rates of inhibition of growth towards antibiotic resistant bacteria, food poisoning pathogens, and bacteria responsible for various oral diseases. These findings can offer a natural alternative to treating bacterial infections with fewer adverse side effects than the traditional antibiotics used today.

54. The Food We Eat, Because of Bacteria
Benjamin Friou

Our society today instills us with the notion that bacteria are unhealthy and will make you sick, often ignoring the important role they play in maintaining our bodies and aiding in the production of food. Many foods, including fermented meats, cheese, yogurt, and even some types of bread, require bacteria at one stage or another in process of production. These bacteria, usually *Lactobacillus*, perform metabolic processes such as the production of lactic acid, that allow a finished product to be formed, as well as give the characteristic flavors to these items.

55. Under Our Noses: New Avenues of Anti-Microbial Treatment May Be Closer Than We Think
Ben Thumma

Homeopathic and herbal remedies have been used for generations, and we only began to scratch the surface of their potential before we started to switch to "super drugs." Now with the advent of "super bugs" we must look to the past to learn more about how the natural world around us can interact with microbes and put those lessons into practice combating the rising tide of Anti-microbial resistance.

56. Antibiotic Resistance in Different *Candida Albicans* Isolates
Manuel Ortegon

Candida is a yeast species, which is the most common cause of fungal infections. Different species of *Candida* have developed throughout time, but *Candida albicans* remains the main culprit in nosocomial and yeast infections. Usually only nosocomial *Candida* infections and yeast infections are the ones that develop antibiotic resistance, but lately different *Candida* strains found outside a hospital environment and not related to yeast infections have been developing antibiotic resistance as well.

57. The Spread of Antibiotic Resistance is a Problem That Contravenes Hospitals and Must Be Addressed Through Community-Wide Efforts
Nolan Klein

The spread of antibiotic resistance is not only occurring in hospital settings, although that is where its devastating effects are being realized. Based on large scale models and small scale studies researchers have determined that combating antibiotic resistance cannot be accomplished effectively at the hospital level. It will take regional coordination efforts between hospitals in the community to manage infection control due to carriers of antibiotic resistant bacteria and large scale use of antibiotics.

58. A story of Tuberculosis: Veni, Vidi Vici (or So We Thought)
Zach Jenner

Tuberculosis is perhaps one of the most unique diseases of all time, as it has roots in a handful of medical inventions and historically relevant events, and is also a bacterium with a fascinating pathology. In this review we will explore the history, physiology, treatment and resurgence of tuberculosis as an international killer in tandem with the human immunodeficiency virus, and finish with a discussion of how to make finding a "cure" for tuberculosis similar to SEAL Team Six's approach to locating Osama bin Laden.

59. Anti-Infective Strategy Against Staphylococcus Aureus
Ed Yu

Staphylococcus aureus is a bacteria found all over our skin, and although it's harmless here, everything changes when it goes where it's not supposed to. Once the bacteria becomes infectious, it starts to cause illness and death, and some antibiotic resistant strains become very hard to treat. What if there's a protein that can counteract these infectious properties?

60. Toxic Shock Syndrome: A Known Syndrome, Unknown Killer
Zoe Arispe

"Mini-abstract:" Toxic Shock Syndrome is an infection that is caused by either Staphylococcus aureus or streptococcus bacteria. It has mainly been linked to the use of tampons and two types of birth control methods, the contraceptive sponge and diaphragm, but it can also arise from secondary wounds, minor trauma, or surgery incisions. Toxic Shock Syndrome can affect anyone who has a staph infection and the symptoms include sudden high fever, feeling faint, diarrhea, headache, a rash, and muscle aches.

61. The Use of Bacteria in Cancer Research
Chelsea Peterson

Cancer research has come far and is branching out, using many avenues to find therapies for different cancers. One of these avenues is the use of bacteria, even though it has been suggested that some bacterial species can cause cancer, others may be a great way to find out what makes cancer tick. This is a very broad field because there are many ways that bacteria are used in the research, detection, and treatment processes. There are theories that certain proteins produced by bacteria such as the azurin protein can be used to keep cancer cells from growing. It has also been seen that bacteria can be used to detect the presence of tumors and possibly used in treatment, like the well-known *E. coli*. In addition, many obligate anaerobes can replicate in tumors and inhibit growth of tumor cells. There are many examples and the possibilities seem limitless in this field, which continues to grow.

62. Old Virus Brings New Perspectives
Ivan Cruickshank

A 30,000 year old virus was found frozen in the Siberian permafrost and revived. *Pithovirus sibericum* is the largest virus found to date at 1.5 micrometers (a human hair is 40-50 micrometers) and can be seen clearly under a microscope. If *P. sibericum* has been dormant for thousands of years only to be found and revived much later, then diseases like smallpox, that were once thought to be eradicated, could be somewhere out there waiting to be found. What else could be hidden under the ice?

POSTER PRESENTATION abstracts

63. The Life Cycle of Ski Equipment
Benjamin Shapiro, Advanced Entry Seminar
Sponsor: Dr. Therese Shelton

A trend of increased sales and production of ski gear means more people are discarding their old equipment, consisting mostly of polyurethane plastic, various foams, fiberglass, wood, and metals. At present, the ski equipment is mainly produced, distributed, used, and put into landfills, where it is neither recycled nor treated because that is more expensive. However, new methods of treating synthetic waste have been developed and small scale producers are already making headway for profitable recyclable ski gear that waste treatment workers, with environmentally friendly methods, can more easily recycle or dismantle to be decomposed after its useful life.

64. The Process of Metal Recycling and its Effects on the Environment
Nisha Pillai, Advanced Entry Seminar
Sponsor: Dr. Therese Shelton

The recycling of metals is known as a sustainable approach. We provide an overview on the current knowledge of metal recycling. Metal recycling is an important way of reducing the environmental impact of metal extraction from the earth and is necessary to have a sustainable economy. Recycling reduces the need for more mining, which is a source of pollution. The second is for society to decrease demand for metals in the first place through a mixture of recycling and smarter product design. However, under current economic conditions, recycling is more expensive than metal mining. There are a lot of unknown costs with both recycling and mining. We seek to have a better understanding of recycling and its effects on the environment.

65. Appreciate Invertebrates in our Ecosystem! The Game
Benjamin Friou, Animal Behavior Program
Sponsor: Dr. Romi Burks

Invertebrates live everywhere. They occupy every known ecosystem in Georgetown, Texas, and inhabit many of the places that we, humans, occupy, carrying on the processes necessary for other forms of life to exist quietly in the background. Perceptions of their functions, however, tell a different story. In an effort to educate the public about the necessary function of invertebrates in our ecosystem, as well as foster a sense of responsibility for preserving the natural environment, I propose creation of a game that requires the player to pick up cards from the "Invertebrate Bank" and place them into the correct niche. Organisms may occupy multiple niches. Players must maximize the positive effect that invertebrates have on the environment while being conscientious to reduce negative effects that indirectly occur with introduction of different species into each habitat. Players make decisions based on given information about each habitat and each organism, considering each effect on the environment in order to optimize the system. The game will be presented as a poster where people can come up, draw a card with an organism and some information about it, and place it somewhere on the board. As we seek to draw connections between disciplines and approaches, I hope that people will walk away from this activity with a greater propensity to think about these organisms in a positive way and take steps to conserve them. Hopefully, they continue to 'play the game' by educating others about the benefits these organisms provide to the ecosystem.

66. Like water for snails: A case study of Emerald Lake as a system invaded with apple snails (*Pomacea maculata*)
Alex Petrucci, Animal Behavior Program
Sponsor: Dr. Romi Burks

Connectedness of habitats through urban sprawl holds multiple implications for invasive species. Emerald Lake (Missouri City, Texas) comprises a freshwater lake surrounded by a community featuring lakeside homes. We investigated an established population of apple snails at Emerald Lake and positively identified the invasive snails as *Pomacea maculata*, confirming their range expanding into this Fort Bend County lake. New source populations occur as the invasive species spreads through water channels, the aquarium trade, and dumping. Public health, environmental, and safety concerns exist should any of the source populations contain snails infected by parasites or that facilitate invasion of disturbed habitats. Surveys done in 2010 and 2013 at Emerald Lake revealed a population dominated by mature snails as on-site visitations included few juveniles. Emerald Lake provides a number of artificial substrates, such as bridges, for snail oviposition, prompting investigation into population size. In our study, we confirmed collected data, the shoreline distribution of egg clutches, the quantity of intact egg clutches, and the quantity of recently hatched clutches ('scars') to see where snails might congregate. We examined the quantity of intact egg clutches and broken egg scars using a frequency distribution map designed in Arcmap 10.1 and found 'hot spots' among areas of the lake. We recommend individuals involved in developments near the lake become informed of the threats apple snails present to the freshwater ecosystem and public health. If efforts occur to crush any pink egg clutches, the population of apple snails present in Emerald Lake can be better controlled.

67. Recording Villas with Restoring Ancient Stabia
Katherine Nave, Chandler Johnson, Art and Art History Department
Sponsor: Dr. Thomas Howe

Working with Dr. Thomas Howe's Restoring Ancient Stabia foundation in Stabia, Italy, students Katy Nave and Chandler Johnson took part in an ongoing project of recording the ancient structures of the Roman villas at Stabia. The archaeological site was part of the aftermath of the volcanic eruption of Mt. Vesuvius in AD 79 along with the nearby centers of Pompeii, Herculaneum, and Oplontis. Unlike these nearby urban centers however, the villas at Stabia were a concentration of stately villas owned by the Roman elite, the largest concentration of such in the Mediterranean. This rare quality of the villas, along with the high preserving qualities of the volcanic eruption of Vesuvius means that the villas of Stabia are the only sites where archaeologists are able to recover the total ambience that this unique center for the Roman elite originally had. The cluster of villas includes extensive, multi-level structures of a complex scale. Because of the fragile state of ancient sites like Stabia, the site is in need of a highly accurate structural record. The technique being used to produce this is a combination of digital reflectorless theodolite recordings and traditional hand drawing. This is what Chandler Johnson and Katy Nave have been participating in over the last two summers. They have produced digital wire frame models as well as hand drawings of selected painted motifs found in the villas, building on an expanding database.

68. Effects of Antioxidants on Radical Induced DNA Damage
Katie Ferrick, Biochemistry Department
Sponsor: Dr. Maha Zewail-Foote

Oxidative damage to DNA has been linked to cardiovascular disease, cancer, and other ailments associated with aging. We wanted to investigate how chemicals found in dietary sources could play a role in protection of biological molecules important for cell function. Because iron ions participate in an oxidation reaction to produce damaging radicals, the antioxidants rosmarinic acid and caffeic acid were assessed for their ability to bind iron and inhibit hydroxyl radical induced DNA damage. Rosmarinic acid was more effective than caffeic acid at protecting DNA from iron-mediated generation of radicals and inhibited almost 100% of damage. We verified that the antioxidants bound to iron using UV-Vis spectroscopy.

69. Effect of methamphetamine on DNA damage in four rat brain regions
Zane Johnson, Biochemistry Department
Sponsor Names: Dr. Maha Zewail-Foote, Dr. Fay Guaracci

Methamphetamine, an increasingly common drug of abuse, is recreationally used for its powerfully euphoric psychoactive properties. Methamphetamine has also been shown to be extremely addictive and neurodegenerative. When consumed, the drug moves across the blood-brain barrier and releases a surge of dopamine, a neurotransmitter responsible for the “feel-good” feelings the brain makes naturally. It is suspected that the increase of dopamine between synapses increases the production of reactive oxygen species that can cause oxidative DNA damage leading to strand breaks. The goal of these experiments was to elucidate the DNA damaging effects of methamphetamine on four dopamine dependent rat brain regions. Using the comet assay, we have shown that multiple doses of methamphetamine lead to DNA strand breaks in different brain regions.

70. Our Often Ignored Invertebrate Benefactors in Agriculture
Elizabeth Clementson, Biology Department
Sponsor: Dr. Romi Burks

Our culture generally favors vertebrates over invertebrates, often because people hold less knowledgeable about invertebrate species. Consequently, many people fail to notice the positive contributions invertebrates make to our economy and our daily lives. Invertebrates play important roles in agriculture. Many of the ecosystem services they provide would be incredibly expensive and difficult to replicate ourselves, including maintaining healthy soil, acting as biological control agents and serving as pollinators. These factors make it critical that we ensure their survival and maintain their biodiversity. A poster will be used to demonstrate the value of soil invertebrates, monetarily and in other respects, to determine which species play the most valuable roles and the tipping point where the cost of replacing their services would be devastating to agriculture. Soil ecosystem engineers such as ants, termites, and earthworms, for example, play an important role in producing a large diversity of biogenic structures in the soil that, in turn, provide the soil with highly favorable hydraulic properties. A lack of diversity in these structures greatly impairs soil function. The positive contributions of soil invertebrates to soil quality and fertility advocate viewing them as beneficial rather than strictly as pests, so increased knowledge should counter vertebrate bias. Having invertebrates perform these tasks makes farming both less expensive and more sustainable. Human and environmental issues too often represent opposing forces, but here both interests lead to the same goal of ensuring maintained biodiversity of invertebrate species.

71. Invertebrates and their effect on Medication

Tessa Galloway, Biology Department

Sponsor: Dr. Romi Burks

While invertebrates often fail to rank as “important” as vertebrates, invertebrates make up most of the animal population and serve a large purpose in the medical world. This work seeks to make connections between medicine, art, and biology to present a straight-forward view of how invertebrates help shape the medical field. Many different invertebrates help positively contribute to medical research and advances and this project will focus on some notable as well as lesser known examples. For instance, few people probably know that Porifera (sponges) maintain a close association with a number of bacteria and sponges and seem to tolerate surgical manipulations such as cutting and auto-grafting. Furthermore, mollusks serve as intermediate hosts for a variety of organisms that cause disease and that research connects directly to medical practice. For this project, I plan to create a photographic collage of the different invertebrates and what part of the medical field they help. The collage will be a poster that positions the invertebrate directly next to their applied portion of medicine with a brief description of the importance in human life. I chose photography as the chosen media because I think that presenting people with hard evidence allows for better understanding of how invertebrates can actually affect people’s everyday life. This project will portray the importance of invertebrates and their contributions to humans, especially in the medical field.

72. Spiders on Drugs

Daniel Lenihan, Animal Behavior Program

Sponsor: Dr. Romi Burks

Our society commonly uses drugs that elicit psychoactive effects, whether those drugs include relatively “harmless” ones as caffeine or a more volatile compound. Because of the prevalence of such behaviors, we want to discover more about how and why these drugs affect us the ways they do. The use of animal test subjects to study and represent the effects of such drugs represents a common practice, at least among mammals and other vertebrates. Invertebrates, specifically those with a much less developed nervous system, may not be the best candidates to represent the effects of drugs on a human counterpart. However, spiders prove an interesting exception to that generalization. Spiders appear fully capable of critical thinking and performing tasks based their interpretation of their environment to some degree such as making their webs. By administering psychoactive drugs to spiders, studies found that their web constructing capabilities deteriorate and the webs appear altered in different ways depending on the specific drug.

73. Expressive Arts and the Intuitive Painting Process

Betsy N Warren, M.A., NCC, LPC-Intern, Wellness Counselor and Outreach Specialist

Course Description: Are you yearning for something CREATIVE and FUN to do at the end of the school year to help you alleviate stress and decompress? Do you have interest in exploring yourself through the arts? Would you like to awaken and discover new insights about yourself? If you said yes to all of these questions, than this course is for you! Let me guide you in the process of finding your voice, trusting it, and allowing your inner guidance to shine through with the Intuitive Painting Process! This class is for anyone who wants to loosen up and explore their creativity in a more authentic way. All levels of painting experiences are welcome and the focus is on PROCESS, rather than the end result. So what do you have to lose? Join the class today! Your body, mind and spirit will thank you.

74. Go West Young Snails: Origins of Invasive *Pomacea maculata* in Louisiana
Carson Savrick, Biology Department
Sponsor: Dr. Romi Burks

Invasive species negatively impact ecosystems by competing with native taxa, altering habitats and facilitating the introduction of parasites. *Pomacea maculata* (Ampullariidae) is a rapidly spreading non-native snail threatening native biodiversity, agriculture and public health. Fundamental questions investigated through an integrative approach, combining ecology and molecular biology, have great potential to yield insights into the processes shaping invasion success. For example, DNA sequences can inform the geographic origins of introduced populations, and provide insights into the pathways of spread. Previous studies indicate two introductions of *P. maculata* into the United States, initially Florida and Texas, from populations in Brazil and Argentina. More recently data indicate that snails have spread to Alabama via Florida, yet there are no data on the origins of a recently established Louisiana population. To test the hypothesis that Louisiana population results from spread out of geographically closer Texas, we sequenced mitochondrial cytochrome c oxidase subunit I from 43 Texas and 4 Louisiana snails and carried out phylogeographic analyzes with sequences from Genbank of *P. maculata* from their native range. Louisiana snails were a single haplotype genetically identical to individuals collected from Everglades National Park, Florida. Preliminary data indicate that snails continue to spread westward from Florida. The exact routes of spread await determination, and are the subject of continued efforts that will included increased sampling from introduced populations to improve resolving power. Although preliminary, these data have profound implications for understanding the continued spread and potential impacts of the highly damaging invasive species.

75. Identification and Characterization of a Putative Transcriptional Repressor on the Integrating Conjugative Element R391
Audrey Garcia, Biology Department
Sponsor: Dr. Martin Gonzalez

R391, a known Integrative Conjugative Element, expresses the error prone DNA polymerase RumA'2B which can lead to mutagenesis. R391-mediated mutagenesis has been shown to lead to the development of antibiotic resistance, and most likely this mutagenic activity is highly regulated. Also located on R391 is a putative transcriptional repressor gene designated setR. The R391 setR gene was cloned into a plasmid and was able to repress the levels of RumA'2B-mediated spontaneous mutagenesis. To further support the confirmation of putative setR as a repressor we demonstrated the reduction of cellular levels of the rumA gene. Our work suggest that the R391 SetR factors as a repressor of the rumAB operon thereby placing necessary control on the mutagenic activity.

76. GIS Based Mapping of Yazoo Stream Changes
Ivan Cruickshank, Environmental Studies Program
Sponsor: Mr. M. Anwar Sounny-Slitine

Rivers have naturally occurring floodplains around them that sit at a slightly lower elevation due to sediment build-up of natural levees. A network of streams flow along these levees in the floodplain, and either feed into or are fed by the river running parallel. The Yazoo streams flowing next to the river interact with it during floods and can be vital for distributing nutrients to the surrounding area. Using a GIS based spatial analysis this study maps changes in the Nisqually Delta taken in separate sittings over a period of thirty years. This project illustrates the

importance of understanding the landscape to predict water flow and erosion and can be applied to long-term building plans.

77. The Effects of Roads and Cattle on Amazonian Deforestation
Heba Abdel-Rahim, Environmental Studies Program
Sponsor: Mr. M. Anwar Sounny-Slitine

Since 2000, the global net forest loss increased greatly, especially in one of the most important biodiversity hotspots on our planet: the Amazon. Deforestation is causing significant environmental damage; it is important to understand this damage because of rising concerns of climate change. This study will map the amount of forest loss in Brazil from 2000 to present day, and show the significance of public roads and cattle industry upon the Amazon. By mapping the location of major roads and the cattle industry, this study shows the effects of economic development upon the Amazon. This study will obtain data of forest cover loss from globalforestwatch.org and University of Maryland's Global Forest watch map.

78. Health Care in Williamson County: Is this Country Really Run by Old People?
Gabby Hunt, Environmental Studies Program
Sponsor: Mr. M. Anwar Sounny-Slitine

Georgetown is known for Sun City and its elderly populations living in retirement communities. The elderly typically need hospitals more than any other age group. The point of researching this topic is to look for a correlation between where the elderly live in relation to where hospitals are located. This is to find out if there is a lack of healthcare access in other areas. Do the elderly have better access to healthcare than young children? The abundance of elderly in Williamson County most likely has to do with Sun City alone. The average age in Williamson County is 44 years old, but that is still two years more than every other county in Texas. More people might think the average age would be much higher due to Sun City, but if the far south of Georgetown is observed, there is a high population of younger people that can't afford to live directly in Austin. First, the data would need to be gathered through the census website. This is to get an age breakdown in Williamson County and focus in on the elderly population as well as the population of young children (ages 10 and younger). The locations of hospitals and clinics can be found on Google Maps. The data can be added to ArcMap in order to map out elderly populations and child populations compared to where hospitals and clinics are located.

79. Subcellular Distribution of Claudin-3 in MCF-7 Breast Cancer Cells
Rachel DeLong, Kara Curley, Laura Steed, Noah Bierwirth, Busola Okunnu, Biology Department
Sponsor: Dr. Rebecca Sheller

Tight junctions are responsible for attaching and anchoring adjacent epithelial cells to each other to form linings for the body's luminal compartments. Claudin-3 is a transmembrane protein component of tight junctions. However, in breast cancer cells, we find claudin-3 in subcellular locations other than the plasma membrane. We are interested in the mechanisms of distribution and functions for claudin-3 in these locales. In this study, we grew normal human mammary epithelial cells, HMEC's, and cancerous breast epithelial cells, MCF-7's, in culture until they were nearly confluent. We separated HMEC and MCF-7 proteins into subcellular fractions and probed each fraction for claudin-3 by immunoblot analysis. For MCF-7 cells, we observed the greatest claudin-3 immunoreactivity in the membrane fraction and also found substantial amounts of the protein in the cytosolic, nuclear, and cytoskeletal fractions. We compared the subcellular distribution of claudin-3 with the distribution of other proteins reported to be specific for cytosolic, membranous, nuclear, and cytoskeletal compartments. Incubation of MCF-

7 cells with phenylarsine oxide, an inhibitor of endocytosis, for 1-3 hours changed cellular morphology and reduced claudin-3 immunoreactivity in the cytoskeletal fractions. These data indicate that endocytosis/exocytosis events play a role in the distribution of claudin-3 in MCF-7 cells. We hypothesize that nascent claudin-3 is targeted to cell membranes of MCF-7 cells, but delocalized to other cellular compartments as part of signaling mechanisms, perhaps associated with apoptosis.

80. Gender and Age Trends of the Coxsackievirus: A Retrospective Study of a Pediatric Practice
Kara Curley, Kinesiology Department
Sponsor: Dr. Jimmy Smith

The coxsackievirus is known to cause diseases with neurological complications and fatalities in severe cases. Globally, the incidence of coxsackievirus infection occurs with a 60:40 male to female ratio and is more prevalent among younger patients. Recent outbreaks have created a need to characterize the prevalence of occurrence in the U.S. Purpose: The purpose of this study was to analyze the trends of coxsackievirus infection in a specific pediatric practice in the U.S. and to compare them to global trends. Methods: A clinical report from Phoenix Pediatrics, Ltd., including 130 cases of coxsackievirus over a two-year span, was analyzed. Chi-square analyses were performed to compare the gender ratio of the sample to that of the expected global ratio and to determine if the incidence of infections occurred equally across age groups. Results: The gender analysis suggested that the sample came from a population that did not differ from the global male to female ratio of 60:40 ($\chi^2(1, n=130)=0.03$, $p=0.86$). Further chi-square analyses showed that the incidence in the sample did not occur evenly across age groups ($\chi^2(2, n=37)=16.60$, $p<0.001$) and frequency of infection within the 0-4 years age group was significantly higher than expected ($\chi^2(1, n=130)=24.12$, $p<0.001$). Conclusion: Within this pediatric practice, the incidence of coxsackievirus infection was found to be consistent with the expected 60:40 male to female ratio. It was determined that there was not an equal incidence across different age groups and that patients between the ages of zero to four years were more likely to contract the coxsackievirus.

81. Effects of Stride Rate Manipulation in Shoes with Varying Drop Heights
Emily Ammon, Kyle Allen, Kinesiology Department
Sponsor: Dr. Scott McLean

Runners who land with a more dorsiflexed ankle (i.e., an increased angle of the foot relative to the ground) while heel-striking may be at an increased risk for injury. PURPOSE: To determine whether rear foot strikers can reduce dorsiflexion at contact without increasing metabolic cost, heart rate, or perceived exertion while using a lower drop height (DH) shoe. METHODS: Twelve recreational rear-foot strike runners with varied experience levels were recruited. Tibial acceleration, foot angle, VO_2 , HR, and RPE, were recorded when the participant reached steady state during treadmill running at a constant speed at preferred step frequency (PSF), PSF+7.5% and PSF+15% in a low and high DH shoe (Gel-Lyte and Gel-Flux, respectively). RESULTS: VO_2 and HR did not change between shoes or among stride frequencies. Foot angles were lower in the Gel-Lyte ($p=0.005$) and during the +15% PSF condition compared to +0% and +7.5% PSF ($p=0.005$ & $p=0.01$, respectively). HR was higher in the +15% PSF condition than in the +7.5% PSF condition ($p=0.048$), and was not different between the two DH conditions ($p=0.327$). Tibial acceleration was higher in the lower DH condition when compared to the higher DH condition ($p=0.04$), and was higher at +7.5% PSF when compared to +15% PSF ($p=0.01$). CONCLUSION: Running in a lower DH shoe can decrease foot angles at contact, as can increasing the stride

frequency by +15%. Such changes may help diminish injury risk with no increased metabolic cost or perceived physical exertion.

82. Variations in Phenolic Composition and Antioxidants Properties among Lemon Balm (*Melissa officinalis*) Cultivars
Maxime Boneza, Chemistry Department, Biochemistry Department
Sponsor: Dr. Emily Niemeyer

Phenolic acids are known for their ability to fight oxidation as well as their antibacterial properties. Although lemon balm (*Melissa officinalis*) has been well studied due to its high phenolic content, much less is known about its phenolic acid composition and antioxidant properties, particularly within fresh plants. Therefore in this research, we quantify the levels of total and individual phenolic acids in fresh lemon balm and determine how these compounds and the overall antioxidant capacity vary as a function of cultivar and commercial seed source. High performance liquid chromatography was used to analyze eight phenolic acids commonly found in Lamiaceae herbs, and our results suggest that rosmarinic acid is the dominant species in the five lemon balm cultivars studied. This presentation will examine the impact of cultivar on total and individual phenolic concentrations, and will discuss how these compounds contribute to measured antioxidant capacities in lemon balm.

83. Progress Toward the Determination of Antioxidant Properties of Flavanone Metabolites
Katie Costello, Chemistry Department, Biochemistry Department
Sponsor: Dr. Emily Niemeyer

Flavonoids, a classification of polyphenolic compounds, are plant metabolites with a wide variety of functions. In the human diet, they are commonly found in fruits and vegetables and are known antioxidants that also display anti-inflammatory properties. In addition, some flavonoids have shown a potential to stop cancer cell growth. Flavonoid structure is known to affect biological activity, and the goal of this research is to investigate how the structure of flavanones, a subclass of flavonoids, affects the rate of metabolism – specifically glucuronidation – and the antioxidant properties of the resulting metabolite. Flavanones were metabolized with several UDP-glucuronosyltransferase isoforms, and the flavanone metabolites were analyzed using high performance liquid chromatography (HPLC). Continuing work includes gathering kinetic data on the rate of glucuronidation and determining the antioxidant properties of each of the flavanone metabolites.

84. "New Girl:" A New Masculinity
Danielle Ezzell, Communication Studies Department
Sponsor: Dr. Valerie Renegar

This study examines how the male characters of the Fox situation comedy, "New Girl," work to redefine what is "masculine" by portraying characters that do not completely fit the traditional characteristics of hegemonic masculinity. Traditional hegemonic masculine characteristics are grouped into four categories (No Sissy Stuff, The Big Wheel or The Small Wheel, The Sturdy Oak or the Flimsy Ficus, and Give 'Em Hell), and then the show is analyzed on the basis of whether the traditional hegemonic characteristics are represented or if the characters display characteristics that contradict hegemonic masculinity. The topic of masculinity is an important one within communication and feminist studies because it is a confining, hegemonic social code that dictates how men should act. If men are not considered "masculine" in today's society then they are typically ostracized and/or bullied. This study has proven that, based on the character

traits exhibited throughout the first two seasons and the examples provided, the masculinity performed by the male characters in “New Girl” exists somewhere on a spectrum between hegemonic masculinity and femininity, thus they are performing a fluid masculinity. For a critically acclaimed, primetime, situation comedy to depict characters displaying a fluid masculinity, as opposed to hyper-masculinity or effeminacy, is really important because it is setting a standard for the presence of realistic men in the media, thus encouraging men to perform the gender role they are most comfortable with, instead of what is expected, without stigma.

85. Automating Academic Advising Assignment
Andrew Banister, Heather Gronewald, Paris Nelson, Jordan King, Salma Chiheb, John Daniels,
Math and Computer Science Department
Sponsor: Dr. Barbara Anthony

We provide a model intended to increase efficiency and optimize compatibility of the academic advising assignment process at Southwestern University. Part of the academic experience at Southwestern is working closely with an academic advisor, a faculty or professional staff member trained to offer guidance through degree requirements, career planning, and academic and extracurricular goals. Advisor assignments are currently made manually. Although an incredible amount of personal attention is given to each incoming student’s advising questionnaire and pairing, the current method is inconsistent, unnecessarily time-consuming, and sub-optimal. Our program automates this process based on quantified and prioritized factors (including intended major, potential transitional difficulties, and availability of advisors) and optimizes compatibility. We define compatibility with discrete levels (for example advisor in your major; advisor in your division; advisor unrelated to area of interest). Individual faculty and staff have limits on the number of advisees they can handle, so ideal assignments cannot be made for each incoming student; reallocations must be assigned to respond to each student’s needs. Our model attempts to maximize the number of students at the most optimal level. We aim to provide the Center of Academic Success less manual labor, as well as minimizing advisor changes. Our goal is to implement more optimal advisor assignments to benefit the future students of Southwestern.

86. A Genetic Algorithm Approach to the Traveling Salesman Problem
Paris Nelson, Math and Computer Science Department
Sponsor: Dr. Barbra Anthony

Genetic algorithms are a type of evolutionary programming used for solving optimization problems. They play the role of natural selection, treating feasible solutions to a problem as individuals in a population and applying the evolutionary process until an optimum (best fit individual) is obtained. I programmed a genetic algorithm to find optimal solution(s) for small instances of the traveling salesman problem (TSP). The TSP is described as follows: if a salesman has to visit some number (N) of towns what is the shortest route that takes the salesman from their hometown through each of these towns exactly once and back to their hometown? More succinctly, what is the shortest closed path through N points? The TSP is a combinatorial problem and is classified as an NP-hard problem, meaning that there is no known way to solve the problem in polynomial time; for large values of N, the problem's complexity makes it currently unsolvable within a reasonable timespan. My algorithm represented potential solutions as routes, or permutations of cities in the order that they are visited. Each route was initialized as a random ordering with the same starting and ending city (the hometown) and allowed each city to be visited only once. Recombination and mutation were implemented

preserving these qualities. Thus the potential solutions were created as feasible solutions to the TSP and their feasibility is maintained throughout the evolutionary process. My presentation outlines in detail my implementation of the algorithm and its performance on various data sizes.

87. Benefits for the Greater Leander Chamber of Commerce
Garhett Bonneaux, Matthew Chaltain, Abigail Dunn, Alain Chau, Geoffrey Morris, Math and Computer Science Department
Sponsor: Dr. Barbara Anthony

The Greater Leander Chamber of Commerce has expressed an interest in increasing benefits for their members. Ultimately, their goal is to increase the number of members they have and decrease the cost of membership. Bridget Brandt, President of the Greater Leander Chamber of Commerce, recommended surveying members about why they decided to join, what benefits they enjoy the most, if there are any benefits that they would be better off without, or if there would be any benefits they would like to see implemented. Brandt also expressed a desire to encourage people to sign up for more of their premium plans and increase their member participation. Currently there are four different types of membership plans available: "Basic" which costs \$150, "Standard," for \$300, "Grand Member" for \$600, and "Premier Member" for \$900. The cost coming out of the Chamber of Commerce's pocket to sign up new members is \$303. Therefore, when members only choose a "Standard" membership, the Leander Chamber of Commerce breaks even and even loses money when people sign up for the "Basic" membership plan. Our objective as an Operations Research group is to find a way to meet as many of these goals possible, while also finding optimal prices that would encourage members to join and increase their overall participation within the Greater Leander Chamber of Commerce.

88. Southwestern and the Future of Paideia: Optimizing the Paideia Program
Robert Lehr, Saad Benabderrazik, Katie Lelinski, Matthew Miller, Nicholas Moore, Mathematics Department, Math and Computer Science Department
Sponsor: Barbara Anthony

The Paideia program helps students make connections between different departments and courses by organizing students into clusters centered around an interdisciplinary theme. We worked alongside the leaders of the Paideia program to efficiently integrate the redesigned program into numerous aspects of Southwestern life, including the schedule. Paideia students come from various disciplines, and groups in the program find common ground between their fields based on a given theme. In the old program, students had to apply to get in, but the new program will be a requirement for all Southwestern students. Determining the best use of resources towards this end is the primary motivation for this project. Our goal was to minimize scheduling conflicts for classes, students, and professors while trying to satisfy many of the stakeholders' expectations. We created a mathematical program that looked at the incoming class size, professor schedules, and number of courses offered, as well as numerous other factors. Using Operations Research techniques, our team created a flexible model for the Paideia program that determines appropriate solutions for users based on these factors.

89. Perspective and Perception: A Three-Dimensional View
Nozuko Sutherland-Millie, Math and Computer Science Department
Sponsor: Dr. Barbara Anthony

While most people associate computer graphics primarily with video games, its applications and social impact are far broader. Computer graphics is an interdisciplinary area, drawing from the

fields of art, computer science, and mathematics. The variety of possibilities in the realm of computer graphics depends not only on the underlying mathematical concepts (matrix algebra, numerical analysis, and geometry), but also their implementation (from the choice of programming language to the limitations of the hardware) and the artist's vision. The result may be two-dimensional vector graphics, three-dimensional wire-frame modeling, or rendering (in any number of dimensions) that may be photorealistic or stylized. I discuss the importance of perspective and how reality is translated into different media with varying degrees of success and visually displayed in multi-dimensional spaces. Finally, I consider the societal view of three-dimensional computer graphics, examining its current relevance and importance in areas from 3D printing to virtual reality.

90. The Open Source Voting Machine

Rebecca Wilson, Eric Oden, Stephen Holloway, Computer Science Department, Political Science Department

Sponsor: Dr. Steven Alexander

In the industry of electronic voting machines 80% of all products used in national elections are provided by the two large companies, Premier/Diebold and Election Systems and Software. These machines can be very expensive and hard to use. Because of these limitations, the full potential of electronic voting systems has not yet been reached. Our goal is to create a simple, trustworthy, open source voting machine that follows national and state regulations for voting. We did this project because we believe that how we vote has become an issue of equal importance to who we vote for. Elizabeth and Stephen, our research team of Political Science majors, began by researching voting regulations in Williamson County. They continued their research by comparing this information with voting systems in other counties and states and regulations at the federal level, along with existing products used in elections. Elizabeth is currently studying in Washington DC, where she has had the opportunity to get advice and feedback from Federal employees and experts on voting policy. Eric and Rebecca took this information and created a prototype voting machine. This machine integrates a magnetic stripe card reader so that each student can swipe their pirate card to vote. We will be using our machine in a live demonstration during our presentation, and a mock trial conducted with real students. Based on our observations we can then make final changes to our machines, and publish what we've learned.

91. Optimal Resource Utilization at R.O.C.K., Ride on Center for Kids

Rebecca Wilson, Brittany Pugh, Nick Sivon, Christopher Gilbert, Curran Johnston, Emily Gradisar, Math and Computer Science Department

Sponsor: Dr. Barbara Anthony

Our project helped the Ride on Center for Kids assist those with special needs from all over the greater Georgetown area. R.O.C.K. works with clients of all ages to provide equine based therapy in the Georgetown area. The needs of each client are unique, further complicating the scheduling of appointments and the utilization of volunteers. Our task was to use techniques from our Operations Research class to optimize the day to day demands on R.O.C.K.'s resources. This included evaluating how well existing resources met the current needs of the organization, and how future growth will affect these demands. We started our project by collecting data from R.O.C.K. about their current operations. We then used our research and computer software to calculate an optimal solution for resource allocation. Once we determined an optimal solution based on the current number of clients, we manipulated the model to identify potential areas of future need. We also explored the population of current volunteers, and

evaluated the effectiveness of their current management. We worked directly with a member of their staff in order to keep them included in every step of our project, and visited the site to gain a full understanding of their business operations and organizational goals.

92. Developing Student Leaders: Lessons in Shifting the Power
Kendall Guidroz, Daniel Ross, Ruoying Hao, Environmental Studies Program
Sponsor: Dr. Laura Hobgood-Oster

As members of Students for Environmental Activism and Knowledge (S.E.A.K.), we had the opportunity to attend a national environmental student leadership conference last semester where we attended various trainings and panel discussions on environmental issues and organizational strategies. We found many of the trainings relevant to organization planning in general, not merely environmental efforts. As such, we would like to do a joint poster presentation to share important insights into strategy and leadership development with other future student leaders. Our poster will incorporate not only the ideas expressed in the trainings but also the ways that the strategies can, and have, been used to impact Southwestern University. Strategies covered will include organizing, campaign planning, power mapping, strategic framing, and educating community members. Our aim is to increase the repertoire of skills possessed by students on campus and to demonstrate the ways that such skills transcend specific issues and empower anyone to make the change they want to see in their community.

93. Student Perspectives; Environmentally Sustainable Study Abroad
Emma Davis, Sarah Puffer, Brandi Martin, Environmental Studies Program
Sponsor: Dr. Joshua Long and Mr. M. Anwar Sounny-Slitine

As current seniors in the environmental studies capstone, we are assessing Southwestern sustainable culture across all aspects of campus. Additionally, the three of us have just recently experienced what sustainability means internationally through study abroad. We would like to do a joint poster presentation on how the Southwestern curriculum and scholarships (EFSAP) made study abroad possible for each of us. While abroad, we performed different independent research projects all of which were related to environmental practices. Our poster will summarize our experiences in Ecuador, Nepal, and Panama as well as complement our capstone research. Our aim is to show that the sustainability curriculum is not restricted to the campus community and to exemplify how sustainable thoughts may extend beyond Southwestern.

94. Are Alternative Financial Service Providers Targeting Minorities?
Isidoro Ramirez, Environmental Studies Program
Sponsor: Mr. M. Anwar Sounny-Slitine

According to the 2011 Federal Deposit Insurance Corporation's (FDIC) National Survey of Unbanked and Underbanked Households report, 10.2% of residents in the Austin-Round Rock Metropolitan area are unbanked, i.e. people who do not own a savings or checking account, while another 20.4% of people are underbanked, which means that an individual owns a checking or savings account but they still rely on alternative financial service providers for financial services. The 2011 results reveal that Hispanics make up 24.4% of households in Austin. However, Hispanics represent 23.6% of the unbanked population in Austin and constitute another 38.8% of underbanked households in the city. Are alternative financial service providers (AFS), e.g. pawnshops, payday lenders, cash-checking services, title loan shops, and rent-to-own establishments, targeting minorities in Austin? What factors influence the location of AFS providers? Are banks under-serving minority neighborhoods? This study uses GIS to map out the racial, educational, and income distribution in Austin.

Furthermore, georeferencing will be used to identify the locations of banks, credit unions, and AFS. The dependent variable of this paper is the number of AFS providers in an area examined within the following independent variables: percentage of Hispanics, Blacks, and Whites, income level, commercial activity, and poverty rates. Interpretations of this project are based on a linear probability model applied to these independent variables, illuminating which factors correlate with the concentration of AFS providers in specified regions of Austin.

95. Assessing the Resource Potential of Southwestern's Undeveloped Land
Austin Spraetz, Environmental Studies Program
Sponsor: Mr. M. Anwar Sounny-Slitine

One of the best indicators for financial success in today's world is the amount of property one owns. In this way Southwestern would be considered very well off. However, it's not how much land you own but what you do with it that matters. This project assesses and proposes potential action plans to better utilize the development and preservation of Southwestern's contiguous campus property. Keeping in mind the administration's previous commitments in Master Plans, such as maintaining a view corridor from inner campus and eastward, this project identifies various development scenarios which can each provide a beneficial resource for Southwestern. The current management of Southwestern's 700+ acres of buffer and potential expansion zone leaves much to be desired. It is heavily underutilized, where large swaths of land are harvested for hay and feed. Replacing these current activities with more sustainable ecosystem services can improve both the health of the ecosystem but also increase potential learning activities for students. By simulating various methods of land use, letting it grow into a natural forest or wooded area, developing renewable energy in some form, maintaining its current agricultural function but expanding it or growing energy crops, this project highlights the high level of potential of Southwestern's buffer zone. Through the use of GIS these scenarios can be considered and compared to other potential courses of action such as maintaining the status quo or selling the land under a Green covenant to a third party. Viewing this valuable piece of land and realizing its potential to be a financial, environmental and social asset, is crucial. This analysis will help reach this potential.

96. STARS Across the Nation
Kayla Guentzel, Environmental Studies Program
Sponsor: Mr. M. Anwar Sounny-Slitine

Sustainability has been an increasingly more important concept as the world burns through more and more resources and large institutions have to be more conscientious of the impact they're making on the environment. For their capstone this semester, the Environmental Studies class conducted a comprehensive study of the sustainability of universities in the nation. This included assessing the sustainability of Southwestern University using a rating system developed by the Association for the Advancement of Sustainability in Higher Education (AASHE) called STARS (Sustainability Tracking, Assessment & Rating System). Another aspect of their class involves how joining STARS might impact the surrounding universities. Using data for campuses currently ranked with STARS, a time lapse map was created to observe how STARS membership spread across the nation since 2010.

97. The Transformation of China's Tibet Policy
Cody Phelps, Political Science Department
Sponsor: Dr. Patricia Schiaffini

After the Chinese invasion of Tibet in 1950, the CCP set about a large restructuring project. Hoping to transform the region from a feudal Buddhist theocracy into a modern communist system, the Chinese government enacted many changes to Tibet. Each successive leader of the Chinese state, ranging Mao Zedong to Hu Jintao, created a new policy in answer to the Tibet question. Although these leaders faced many problems from both Tibetans inside the Tibetan Autonomous Region (TAR) and the government in exile, I state that the majority of these policies weren't started as a response to Tibet but rather a continuation of greater statewide policies. This paper utilizes the comparative method to show how the Chinese Tibetan policy has evolved under the different leaders of the Chinese state. The evidence will be drawn from official government papers and statements, case studies covering the Cultural Revolution and 2008 Olympics, and other scholarly works. This study shows that China's response to the Tibetan question has not been a unified policy of reacting to instabilities, but rather extremely varied policies enacted by the individual Chinese leaders. Similarly, these policies were not concerned solely with Tibet, but with issues across China as a whole.

98. Comparisons Between Tibetan Buddhism and the Roman Catholic Church
Eryn Quinn, Political Science Department
Sponsor: Dr. Patricia Schiaffini

In my presentation, I seek to compare and contrast Tibetan Buddhism with the Roman Catholic Church. I do this not by on scriptural or doctrinal similarities, but rather by comparing social influence, infrastructure, and political clout with their respective societies, both in history and today. I will also include the positions of the Pope and the Dalai Lama.

99. The Challenges the Children of Tibet Face under Chinese Rule
Shawnee Vasquez, Modern Languages and Literatures Department (Chinese)
Sponsor: Dr. Patricia Schiaffini

Every day the children of Tibet come across challenges and hardships that dictate their future. Being under Chinese rule is a major component in contributing to their struggles to survive. Education is vital to a child's development and in Tibet, it serves as an opportunity for a child to have a chance at a job aiding their future survival. The cultural identity of Tibet is affected by the education policy because of China's power on language and literature being taught. Tibet strongly identifies with its heritage and traditions which can be misleading for children because although they are required to learn Chinese and they are expected to keep their Tibetan identity. It's important to take a closer look at the challenges each child faces in order to sustain a "normal" childhood.

100. To What Extent Does Buddhism Influence Tibetan Society Throughout History?
Julianne Wood, Religion Department
Sponsor: Dr. Patricia Schiaffini

The term Tibetan, as used by Western academics, may be employed to denote populations which have common history and tradition, and share worldviews. Tibet can be seen as a "root of the world", a country where Buddhism has penetrated every aspect of life and survived irrespective of all political changes. Although there is obvious diversity from region to region,

there is a strong family resemblance in language, lifestyle, and culture. Despite their diversity, the element which defines the Tibetan speakers is their shared belief that Buddhism unites them; the very sense of Tibetan is fused with Buddhist identity. Throughout history, the Tibetans never achieved a sense of loyalty to a country or a nation – it is evident that people did not think in terms of their country being attacked, but of their way of life and religion being under threat. The history of Tibet was portrayed as pre- and post-pivot, having turned, with the introduction of Buddhism in the seventh century, from a society that had been directed outward, to conquer the world, into one that directed all its energies inwards, to conquer the mind. Perhaps the most unique aspect of the Tibetan system is that they did indeed combine the political and religious, even providing for political succession by the Buddhist method of reincarnation. Since the introduction of Buddhism from India, Tibetan Buddhism gradually developed to form its distinctive characteristics resulting in social and political manifestations of religious government, institutional monasticism, transformation of temperament and mindset, development of literature, education, and aesthetics, and most importantly, unity.

101. Man and Woman: an Application of Irigarayan Theory
Natalie Jordan, Grace Naeger, Modern Languages and Literatures Department (French)
Sponsor: Dr. Aaron Prevots

As a continuation of ideas discussed in Dr. Prevots' French 604 class "Contemporary Women," we will be using theories outlined in Luce Irigaray's book, *Être Deux*, in our examination of other works of fiction in the fields of poetry, film, and literature to better understand the differences inherent in men and women according to Irigarayan theory. Irigaray writes about men and women as separate but complementary entities. In the eleven chapters of *Être Deux*, Irigaray gives eleven different ways of looking at these differences: how and why they occur, why they are necessary, and the advantages and disadvantages of each approach. We have chosen this topic because of the variety present in Irigarayan theory, which is applicable not only to men and women, but also to different races, cultures, and generations. By understanding and applying this theory to pertinent works of fiction, we will contribute to Irigaray's goal of spreading knowledge and acceptance of differences and diversity in today's modern world.

102. "Kings of Pastry:" Let Them Eat Cake!
Olivia Noel, Cadie Pullig, Amara Yachimski, Modern Languages and Literatures Department (French)
Sponsor: Dr. Aaron Prevots

An intriguing part of the French language classes at Southwestern University is that we get the chance to learn about the French culture as well. One aspect we found interesting is the food culture in France. Using the movie "Kings of Pastry," we will highlight the differences between pastry chefs in France and in America. To do this, we will compare the movie "Kings of Pastry" with American reality TV shows, such as "Cake Boss" and "Cupcake Wars." We will explain why being an accomplished pastry chef is a big deal in France. To further emphasize this, we will also list examples of past and present MOFs: Meilleur Ouvrier de France. The results present the differences in what respected jobs look like between the French and Americans. In France, people aspire to be top pastry chefs and dream of wearing the prestigious collars of the MOFs. However, in America, respected jobs are professions such as doctors and firemen. Through our findings, we are able to note the significant differences in our food cultures, as well as our working cultures.

103. What's the Difference? A Look at Jamaican and United States Musical Culture
Michael Martinez, Music Department
Sponsor: Dr. Eileen Meyer Russell

This past summer, my professor Dr. Eileen Meyer Russell and I embarked on a faculty student project to Montego Bay, Jamaica for one week. Based on Dr. Meyer Russell's previous experience in Jamaica, we set out to accomplish three goals: to teach trombone lessons to surrounding schools in Montego Bay, to perform and assist in the Western Jamaica International Music Festival, and to donate music supplies ranging from sheet music to a brand new trombone to the schools. The overall purpose of this trip was to bring together two different cultures of music and share ideas internationally for the cultivation and teaching of music in new and thought-provoking ways. The purpose of this presentation will be to relay these experiences and ideas to the general public. This project gave Dr. Meyer Russell and me so much insight into a world and culture that not very many people have had the chance to experience first-hand, and we would like the opportunity to share all we have learned with as many people as possible.

104. African-American Composer Jacob J. Sawyer: Research Methodology, Biography, and Analytical Approach
Wade Smith, Music Department
Sponsor: Dr. Nico Schüler

Newspapers are excellent sources of music-historical research, especially when focusing on the 'forgotten' composers. While newspaper research used to be archival research, it is becoming more and more online research, as more and more newspapers are being digitized and become available online. Digitized newspapers can also be supported by electronic collections and databases. This conference poster is both a methodological reflection on such research as well as a biographic-analytical study, focusing on the 'forgotten' African-American composer Jacob J. Sawyer (1856-1885). So far, little was known about Jacob J. Sawyer. A very sketchy biography was published in E. Southern's *Biographical Dictionary of Afro-American and African Musicians* (Westport, CT, 1982). One of Sawyer's compositions was printed in J. M. Trotter's *Music and Some Highly Musical People* (Boston, MA, 1880). Even dates such as for birth and death were unknown. The authors of this study will present how online databases, electronic collections, and electronic archives were used to reconstruct some of the life and work of Jacob J. Sawyer as a pianist, composer, teacher, and arranger. An introduction and analytical approach to his important compositional work, which includes a march for the Seventh Cincinnati Industrial Exhibition in 1879, will also be included.

105. Servant Leadership: A BIG Case Study
Kathryn Reagan, The Office of Civic Engagement
Sponsor: Dr. Sarah Brackmann

Servant Leadership is personified best by people who desire to serve before anything else. From this, the leadership aspect arises more naturally; a servant leader is not driven by aspirations of power, but rather by the desire to encourage growth, creativity, and agency in those which he or she leads. This presentation highlights the characteristics of servant leadership and explores this particular leadership style through a case study of The BIG Event: a day of service that encourages the Southwestern community to volunteer at various nonprofit organizations and community partners in Georgetown. I use data and archival documents from the last two years of The BIG Event, as well as interviews from BIG Event committee members to illustrate the servant leadership model. By looking at The BIG Event through the lens of servant leadership, I

emphasize the key qualities of a servant leader, and discuss the advantages of such a model in various organizations and institutions.

106. Eco-Dome Greenhouse: Food without Borders
Kelsey Abel, Joseph Kyle, Physics Department, Environmental Studies Program
Sponsor: Dr. Steven Alexander

This year, Joseph Kyle and Kelsey Abel are continuing a King Creativity project from last year which designed and built a low-cost Ecodome. The presentation last spring discussed a number of different applications for this technology, ranging from emergency housing to food production. This year the team aims to apply the dome to one such application and create a greenhouse to grow food. Considering the problems one hears in the news - rising food costs, climate change, population pressures, water shortages - it seems that many of these could be reduced if food production were located much closer to where it is consumed. Moreover the dome was designed to be sent to remote locations easily, allowing for increased food yields in places currently plagued by malnutrition and poverty. Through this King Creativity project we hope to show that our greenhouse would be easy to build, and would be a major producer of nutritious, organic foods. If technology like this could be applied worldwide then perhaps significant change could be done to reduce the laundry list of problems created by large-scale agriculture and augmented by the increasing disparities of wealth around the world.

107. Tibetan Buddhism and its Influence on the Chinese Court System Through Art
Marion Clendenen, Political Science Department
Sponsor: Dr. Patricia Schiaffini

Throughout time, the Chinese government has put forth the idea to its people and the world that Tibet has never truly had any influence on China politically, socially, religiously, economically, or culturally. In this way the Chinese also claim that Tibet has never functioned as an autonomous region separate from Chinese control and thus has always been under the watchful eye of the Chinese government. This presentation will look into those claims and aim to disprove them through research into the influences of Tibetan Buddhism and Tibetan Art brought to the Chinese courts during the Ming and Qing dynasties. Even though modern China claims to have no connection with Tibet in the past, research has shown that art brought to the Chinese courts by Tibetan lamas was celebrated and put on display for the emperor and his people. This influence went so far as Tibetan Buddhism becoming an official court religion and Tibetan lamas inhabiting the Forbidden City for the emperor's spiritual enrichment. Through viewing the court sanctioned art of the same time period, the influence of Tibetan Buddhism is unrivaled, even to the extent that the Qing emperor himself had a painting commissioned of himself as the Buddha. This discussion of art in the final two dynasties in China and the introduction of a new court religion brought from Tibet shows the true relationship between the two countries.

108. Tibetan Film Post 1958
James Grachos, Political Science Department
Sponsor: Dr. Patricia Schiaffini

Film is mostly known for its entertaining elements, but for Tibet, it has been used for much more than an art. As of 1950, Tibet has been under Chinese rule against their will. The Chinese Communist Party has been able to suppress revolutions and pro-independence acts by Tibetans quite well, but with the evolution of media in the last half century, it has become easier and

easier to release information outside the Tibetan Autonomous Region. One of those media forms is film and it has been relevant and growing since the end of the Tibetan Cultural Revolution in the late 1950's. In this project I will assess the importance, context, forms, and impact of certain Tibetan-made films and western films made about Tibet as a tactic of Tibet's domestic and international independence movement.

109. The Extent to Which the Use and Teaching of the Tibetan Language has Catalyzed Tibetan Nationalism

Dayton Blankenship, Modern Languages and Literatures Department (Chinese)

Sponsor: Dr. Patricia Schiaffini

This presentation will discuss the nature of language in Tibet. Due to Chinese control over the region, Tibet's de facto language for commerce, education, and politics has become Mandarin Chinese. When working, especially for the government, interacting with officials such as law enforcement, or even watching the news, Tibetans are being forced to use a non-native language in order to function in society. Because of this, the teaching and use of the Tibetan language in schools, monasteries, and Diasporas inside, and outside of Tibet, such as those in nearby India, serves as an incubator for Tibetan Nationalism. The religious and cultural nature of the language, combined with a surge in nationalism, creates a problem for the Chinese government, which seeks to maintain absolute control over people inside of the Tibetan Autonomous Region and within other provinces and cities in China.

110. Gender Differences in Avoidant Attachment Behaviors as Exhibited on Facebook

Victoria Hughes, Charles Berndt, Psychology Department

Sponsor: Dr. Erin Crockett

Attachment theory asserts that early experiences with caregivers shape people's expectations for future relationships. A person who experiences low levels of warmth and physical closeness is likely to become avoidantly attached (Fitton, 2012). Avoidant attachment style is characterized by a lack of openness and want for social interaction (Oldmeadow et al., 2012). Although each individual's attachment style is determined by their own experiences, men exhibit more avoidant behaviors than do women (Consedine & Fiori, 2009). The goal of the current study was to examine gender differences in avoidant attachment behavior on Facebook. We hypothesized, based on previous research, that men would display higher levels of avoidant behavior than would women. We observed the Facebook profiles of one hundred sixteen college students (60 men, 56 women) between the ages of 18 and 22, and recorded their gender and the number of predetermined items of personal information they shared. Inconsistent with our hypothesis, results from a chi-square analysis indicated that men were less likely to exhibit avoidant behavior than were women (i.e., men had more open profiles than did women). Although these results were unexpected, they are supported by previous research, which states that women are more likely to fear stalking and sexual assault than are men (Fox, Nobles & Piquero, 2009). These fears may moderate the amount of information women feel comfortable sharing on Facebook.

111. Variations of Support Effectiveness as a Function of Self-Efficacy and Support Type

Quinlyn Morrow, Cristina Muyschondt, Psychology Department

Sponsor: Dr. Erin Crockett

Although social support is typically associated with a number of health benefits, for some individuals support worsens outcomes, likely because receiving support can undermine feelings

of competence. Therefore, invisible support (i.e., support that recipients do not recognize as help) is thought to be more effective than visible support (Bolger, Zuckerman, & Kessler, 2000). However, differences in self-efficacy (i.e., an individual's belief in their ability to perform an action) may moderate the benefits associated with invisible support (Bolger & Amarel, 2007). The purpose of this study was to investigate how type of support and self-efficacy interact to affect the cortisol reactivity of a support recipient. In a 2 (Self-efficacy: high vs. low) X 2 (Support type: visible vs. invisible) between-subjects, experimental design, 74 undergraduate students were primed for either high or low self-efficacy using false feedback. Participants then received either visible or invisible support from a confederate while preparing a speech as part of the Trier Social Stress Task (Kirschbaum, Pirke, & Hellhammer, 1993). Results from multilevel modeling analyses revealed that, overall, invisible support decreased cortisol responses more than did visible support; however, invisible support increased cortisol for participants with low self-efficacy. This research suggests that although invisible support can effectively decrease stress, it is not always the best support strategy; if someone feels they are struggling with a task, invisible support can be harmful.

112. Correlation of Perceived Social Support, Investment and Commitment
Aimee Slagle, Psychology Department
Sponsor: Dr. Erin Crockett

Social support has many physical and relationship benefits (Uchino, 2009). The goal of the current study was to investigate whether these benefits from social support extend to a university setting. Specifically, we tested the association between student's perceived support from their university peers and the investment and commitment of college students to their university. The participants included 151 undergraduate students (91 women, 60 men) from Southwestern University. A survey adapted from the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Powell, Farley, Werkman, & Berkoff, 1990) was edited to measure perceived social support from Southwestern peers and the Investment Model (Rusbult, Martz & Agnew, 1998) was adapted to measure Southwestern student's investment to the university. The survey data was analyzed using a Pearson Product Moment correlation test. Consistent with the hypothesis, we found a significant association between perceived social support and investment as well as a significant association between perceived social support and commitment. In other words, the more support that students felt from their friends at Southwestern, the more invested and committed they were to Southwestern. Future research should conduct an experimental design to determine whether support is in fact causing increases in university investment and commitment. If this is indeed a causal relationship, then the association between social support, investment and commitment has important implications for improving students' college experience as well as increasing school retention rates.

113. Behavioral Changes in Children with Autism Spectrum Disorder associated with Equine Assisted Activities and Therapy
Meredith Rollins, Celia Caraccioli, Psychology Department
Sponsor: Dr. Jacquie Muir-Broaddus

This longitudinal study evaluated changes in functioning over 14 weekly equine assisted activity and therapy (EEA/EAT) sessions for 10 children (6-15 years) diagnosed with Autism Spectrum Disorder (ASD). Children were assessed weekly following completion of their EEA/EAT sessions with the Animal-Assisted Therapy-Psychosocial Sessions Form (AAT-PSF). The AAT-PSF documents the child's positive and negative behaviors during the session. In addition, parents completed two sets of questionnaires regarding their child's functioning at home three different

times throughout the 14-week study (i.e. on weeks 1, 8, and 14). Specifically, the Autism Treatment Evaluation Checklist (ATEC), had parents rate behaviors (i.e., speech/language, sociability, etc.) from “not true” to “very true” of their child. The Gilliam Autism Rating Scale (GARS-3) had parents rate their child on restrictive/repetitive behaviors, social interactions, social communication, emotional responses, cognitive style and maladaptive speech on a scale from not at all to very much like the individual. As predicted, the AAT-PSF documented significant increases in positive behaviors and decreases in negative behaviors over the 14 weeks. Contrary to predictions, however, parent ratings on the GARS-3 and ATEC questionnaires did not show significant improvement in ASD behaviors at home, suggesting that these improvements did not generalize across settings. These findings were limited by attrition in both the treatment group and the waitlist control group, such that the control group became too small (n = 1) for statistical analysis. Although some treatment group attrition was due to uncontrollable factors such as weather, future studies should work to maximize consistent participation.

114. Behaviors at the Bar and in the Bedroom

Eowyn Scott, Maya Duna, Kara Manning, Samantha Sada, Sara Goodman, Psychology Department

Sponsor: Dr. Bryan Neighbors

Values are guiding principles that are theorized to have a universal structure across cultures but vary across individuals because people prioritize their values based on their desired goals (Schwartz, 2012). Some values (such as hedonism) have been shown to be related to risky behaviors such as binge drinking (Cole et al., 2007) and unsafe sex (Chernoff & Davison, 1999). Attitudes are evaluations of behaviors that range from favorable to unfavorable (Roek et al., 2010), and they too have been shown to correlate with binge drinking (van der Zwaluw, 2013) and unsafe sex (Walcott, Chenneville, & Tarquini, 2011). However, little research has examined the interrelationship between values, attitudes, and high-risk behavior. Therefore, the purpose of the current study is to explore the relationships between values, attitudes, and two classes of high-risk behavior (binge drinking and unsafe sex) among a sample of college students. A total of 260 undergraduate students at a Central Texas liberal arts university completed a confidential online survey. Specifically, this survey consisted of 91 items assessing sexual risk-taking and binge-drinking behaviors, attitudes toward these behaviors, and 10 core values. Results and implications of the study will be presented at the Symposium.

115. Theory and Practice in the Public Relations Industry

Danielle VanZandt, Economics and Business Department and English Department

Sponsor: Dr. Elaine Craddock

Throughout the liberal arts college experience, we are constantly surrounded by theories and "common knowledge" for our fields of study. How exactly are these theories being put into practice in our real world experiences? By bringing together theories learned in both English and Business studies, as well as the theories surrounding the Public Relations industry, I seek to apply these theories to the practical experiences I had in my three internships. Through this, I will be able to see how the theories of my various majors come into practical experience in the Public Relations industry.

116. The Life, Death, and Rebirth of Paper
Ben Applegate, Advanced Entry Seminar
Sponsor: Dr. Therese Shelton

Paper is one of the world's most valuable resources. Throughout history, paper has been the sole bearer of all the knowledge the human race has accumulated. It is for this reason I have chosen to research such an esteemed part of human culture. I began my journey initially by looking at the basics, how paper is created and destroyed. This was not enough information though. I wanted to know everything about paper. I studied its makeup, sturdiness, and purpose to try and understand exactly what I was researching. Paper can be made from many different materials. While wood is the most common resource, it is definitely not the sole source. In addition, different types of wood can be used to create different types of paper. The wood is broken down into a pulp which contains all the separated wood fibers. It is then steamrolled into a flat surface and when dried it is what we know as paper. Paper is then used by consumers and ends up in a recycling facility where the paper is broken down again and the wood fibers are separated out. From here, the process begins anew.

117. Aluminum Bi-Cycle
Craig Bradley, Advanced Entry Seminar
Sponsor: Dr. Therese Shelton

The purpose of this research was to investigate the life cycle of aluminum and how it impacts landfills and sustainability. The focus of this research was on how aluminum is made and on what raw materials go into making aluminum. In addition, this presentation will compile research about how aluminum, and the waste associated with aluminum, is disposed of. Hazards associated with throwing away aluminum will also be covered. The amount of time it takes for aluminum to biodegrade was researched for this paper. Reusing aluminum product vs making it from scratch conserves around 95 percent of the overall energy. It is imperative that people be educated and act on the importance of reusing aluminum rather than throwing it away which accounts for more wasted energy and resources.

118. The Product Life Cycle of Lithium-Ion Batteries
Travis Fuller, Advanced Entry Seminar
Sponsor: Dr. Therese Shelton

Lithium is to portable electronic devices and the expectation to power new technological devices in the future, as oil is to the internal combustion engine. Without the energy to power these technological wonders, the portable electronic device becomes a useless electronic brick and the automobile becomes an unmovable hunk of junk. Therefore, how lithium energy is derived, consumed, and displaced is of the utmost importance to maintaining and improving our standard of living according to our societal expectations.

119. Evolutionary Trade-Offs in Fruit
Rachel Cross, Natalie Rivera, Biology Department
Sponsor: Dr. Benjamin Pierce

Background and Rationale: As biology majors, capstones are integrated within our course load. We have decided to present a project from its evolution at the student works symposium. Because the project follows the schedule of the class, we have not yet completed our research or come to any conclusions. With this being said we intend to compare the evolutionary

consequences of human influence on fruit phenotype through artificial selection. Methods: We will compare previously collected data found in literature, regarding the energy trade-off in fruit between seeds and flesh. Once we formulate a hypothesis based on this data, we will use locally sourced fruit to identify the effects of human artificial selection. Conclusion: The results of this study will show the degree of impact we have on the evolution of fruit. This will be shown through comparison of the wild type and artificially selected fruit.

120. SU Students Teach Chinese and Spanish in Georgetown ISD Schools
Dr. Patricia Schiaffini, Adrienne Dodd, Laura Meitz, Arun Jacobs, Angelyn Convertino, Emmett Gonzalez, Becca Hopkins, Sara Hall, Modern Languages and Literatures Department (Chinese)

Faculty supervisor Dr. Patricia Schiaffini and a group of SU student-participants will present a poster about their experiences teaching Spanish and Chinese, immersion style, at Georgetown ISD schools during the last couple of years. This project, a partnership between SU, GISD and the Snead Institute (a local philanthropy group) provides for the schools' language classes that are tailor-made to their schedule and needs, while having academic quality control. The SU student-teachers get a chance to challenge their language skills, and an opportunity to acquire valuable teaching experience during the critical years when they are making career decisions. Most importantly, the elementary students get valuable exposure to foreign languages at the time when their brains are more primed for language learning than they will ever be. This poster shares with the SU community a clear and viable model for other higher education institutions, local associations, and school districts around the country to bring foreign language education to elementary school children who most likely would not be able to get it any other way. In doing so, this partnership is also advocating for the need to generalize foreign language instruction at public elementary schools, as well as providing college students with the right tools to improve their foreign language proficiency, and become language educators.

ORAL PRESENTATION abstracts

121. Control of Protein Translational Rate by mTOR in Kirsten Sarcoma Virus-Transformed Murine Embryonic Fibroblasts

Hayley Hamilton, Chemistry and Biochemistry Department

Sponsor: Dr. Kerry Bruns

Malignantly transformed cells exhibit an abnormal rate of growth relative to normal cells, requiring a higher rate of protein biosynthesis. To study differences in regulation of translation between normal and transformed cells, KBalb cells (Kirsten sarcoma virus-transformed embryonic mouse fibroblasts) and the parental cell line, Balb 3T3 cells, were used as models. The regulation of protein biosynthesis requires eukaryotic initiation factors, inhibitory binding proteins of initiation factors, and p70 S6 kinase, all of which are substrates of mTOR. Experimental data suggest that changes in the phosphorylation states of substrates of mTORC1 resulting from K-ras transformation affect the rate of protein biosynthesis in KBalb cells along with other means of regulation that require further investigation.

122. Effect of a Glutamine Deficient Medium on Protein Translation in V-Ras Transformed Murine Embryonic Fibroblasts

Tran Le, Chemistry and Biochemistry Department

Sponsor: Dr. Kerry Bruns

Protein translation that promotes the proliferation and survival of cancer cells is activated by mammalian target of rapamycin complex 1 (mTORC1) pathways in response to changes in nutrient levels, including glutamine. Glutamine plays a critical role in meeting cell energy demands for carbon and nitrogen. Recent studies reveal an additional role of glutamine and its metabolic products in regulating key cell survival pathways. However, there is conflicting evidence in the literature on whether glutamine up regulates or down regulates translation activated by mTORC1. Our project goal was to compare the effects of glutamine deficient media on signaling through mTORC1-regulated translation pathways in both malignant and normal cells. The investigation is novel in that previous work of this nature has not been done on our malignant cell line, Kirsten sarcoma virus-transformed murine embryonic fibroblasts. We found that when cells were grown in glutamine-free medium, higher levels of phosphorylated mTOR and its up regulator, Akt, were detected in transformed cells compared to normal cells. However, mTOR substrates were not detected in patterns that would suggest higher translation activity in malignant cells than in normal cells under glutamine-free conditions.

123. Effects of Nutrient Deprivation on the Apoptotic and Autophagic Responses of Malignantly Transformed Cells

Maxwell Oldham, Chemistry and Biochemistry Department

Sponsor: Dr. Kerry Burns

The metabolic process of autophagy involves the degradation of cellular proteins and organelles. Autophagy is associated with tissue remodeling, pathogenic viral and bacterial immunity, apoptosis, protein degradation, and organelle management. It has been shown that some tumor cells exhibiting normal rates of autophagy have decreased tumorigenicity. Additionally, some tumor cells with lower autophagic rates have exhibited increased proliferation and anchorage independent growth. We chose to study autophagy in cancer cells grown in nutrient deficient or optimal media to help us to better understand the complex

metabolism that allows them to thrive in a variety of adverse environments. Using Western Blot analysis, we detected protein indicators of apoptosis and autophagy in a transformed murine fibroblast cell line and its parental cell line grown in optimal and minimal media to assess their autophagic and apoptotic responses. Our results suggest that the transformed cell line grown in minimal essential medium exhibited lower autophagic activity and higher apoptotic activity than the parental cell line. This could indicate that nutrient deprivation induces an increased apoptotic response and suppressed autophagic response in transformed cells relative to their parental cell line. Further analysis of other protein indicators of apoptosis and autophagy would help to verify our results.

124. Analysis of Triglyceride Rich Lipoprotein Oxidation with Cardiovascular Disease Implications
Tyler Poi, Chemistry and Biochemistry Department
Sponsor: Dr. Gulnar Rawji

Triglyceride Rich Lipoproteins (TRL) are biological macromolecules that transport triglycerides and cholesterol to cells throughout the aqueous environment of the body. These particles are characterized by their relative density which is directly correlated to their triglyceride to protein ratio. Most lipoprotein research up to this point has focused on the properties of low density lipoproteins (LDL) and not the more buoyant triglyceride rich lipoproteins. Our current research is delving into the susceptibility of the TRL to Cu^{2+} catalyzed free radical oxidation as a possible cause of atherogenesis. The specific intentions of our study were to establish a standard methodology to exert chemical oxidative stress on human blood plasma. We aimed to establish a method to isolate and then analyze TRL from plasma. This analysis included measuring the effects of the oxidative stress on protein, cholesterol, and triglycerides within the lipoprotein particles. Our preliminary research supports our hypothesis that TRL undergo a similar Cu^{2+} induced free radical oxidation that LDL studies show. There appears to be less buoyant protein present in oxidized plasma compared to un-oxidized plasma. Analysis by SDS PAGE shows a unique banding pattern of the apo-B100 protein in oxidized plasma TRL. Our data strongly indicates that VLDL and chylomicrons may undergo a similar free radical oxidation mechanism as LDL. It has been proven that this specific free radical oxidation of LDL leads to plaque formation and heart disease. Therefore, it is possible that TRL also contribute to the development of atherosclerotic plaque formation in the arteries.

125. Antioxidative effect of caffeic acid on hydroxyl radical induced DNA damage
Adam Shaikh, Chemistry and Biochemistry Department
Sponsor: Dr. Maha Zewail-Foote

Oxidative stress leads to the formation of reactive oxygen species which damages cellular lipids, proteins, and DNA. Hydroxyl radicals, a reactive oxygen species, are formed in the presence of hydrogen peroxide and trace levels of transition metals, such as iron, via the Fenton reaction. Hydroxyl radicals are considered to be one of the most potent biological oxidants because of their highly reactive nature with biological compounds. In this study, the protective effects of caffeic acid on DNA damage induced by hydroxyl radicals were investigated using agarose gel electrophoresis. We also explored the ability of caffeic acid to bind Fe(II) by UV-vis spectroscopy. Our results show that caffeic acid has an IC_{50} of approximately $413 \mu\text{M}$ and that caffeic acid binds to Fe(II) . These results suggest that caffeic acid can inhibit DNA damage induced by the Fenton reaction via an iron-binding mechanism. A better understanding of polyphenolic compounds may help in predicting their relative antioxidative strength and potentially aid in the development of more potent antioxidative drugs.

126. Synthesis and Characterization of Layered Dichalcogenides and Coordination Complexes of Zinc and Platinum with Natural Dyes
Craig Katkic, Chemistry and Biochemistry Department
Sponsor: Dr. Gulnar Rawji

Three layered dichalcogenides of the general formula $LixVyTi1-yS2$ were synthesized in order to study the changes in their physical structure during chemically and electrochemically induced oxidation. Structural data was collected using powder X-ray diffraction (XRD). From the electrochemical studies, it appears that the compounds contained impurities and a new synthetic method will be needed before further studies can be done. Several coordination complexes designed for interaction for DNA for potential anticancer application were synthesized. These compounds of platinum and zinc contained the natural dyes juglone and lawsone. The structure of the zinc lawsone compound was characterized using single crystal XRD. Of the two compounds, the platinum juglone complex showed the more promise than the zinc lawsone compound in the DNA binding studies.

127. Seasonal Comparison of Organic and Conventionally Grown Basil Leaves Commercially Available in Texas
Alec Bergerson, Chemistry and Biochemistry Department
Sponsor: Dr. Emily Niemeyer

While many studies have determined the organic constituents of plants, fewer have analyzed their metal content. The metal content is an important aspect of produce since metals play vital roles as structural and functional components in living cells. For basil, it is especially important, as its inherent nutritional properties make it a popular plant for culinary uses and in herbal remedies. Organically grown produce is commonly believed to be more nutritious but a recent meta study found no significant difference between numerous types of organic and conventional food. In this study, we compared the metal content of basil grown in different seasons and with different cultivation methods: USDA certified organic and conventional. Conventionally grown indicates methods that were not certified organic by the USDA. The content of Ca, Cu, Fe, K, Mg, Mn, and Zn in each basil sample was quantitatively determined by flame atomic absorption spectroscopy (FAAS). Samples were collected from both fall and spring growth seasons and analyzed separately. In the fall samples, the organically grown basil had an average of 1.58 mg/g more Mg. The spring samples showed no significant differences between organic and conventional methods. In the seasonal comparison, samples grown in spring had an average of 0.033 mg/g more Cu than fall samples. This study showed very little difference in trace metal content between growing methods and between fall and spring harvests in basil.

128. Effects of Nitrogen Fertilization on the Phenolic Composition and Antioxidant Properties of Lemon Balm (*Melissa officinalis*)
Daniel Poole, Chemistry and Biochemistry Department
Sponsor: Dr. Emily Niemeyer

Many culinary herbs and spices contain high levels of polyphenolic compounds with potent antioxidant activities. In this study we analyze the effect of nutrient availability during plant growth on the production of phenolic compounds in two cultivars of lemon balm, *Melissa officinalis*. Both cultivars were grown from seed with varying inputs of nitrogen fertilizer (as ammonium nitrate) and all other macro- and micronutrients held constant. Plants were harvested and analyzed by high performance liquid chromatography (HPLC) to determine the concentrations of the following compounds: gallic, protocatechuic, rosmarinic, p-coumaric,

gentistic, caffeine, and chicoric acids. The presentation will discuss the relationship between nitrogen fertilization, the expression of phenolic acids, and the corresponding antioxidant activity in lemon balm plants.

129. Synthesis and Structural Analysis of Organometallic Complexes of 5,5'-Dithiobis(2-nitrobenzoic acid) with Cu(I) and Co(II)

Matthew Nickell, Chemistry and Biochemistry Department

Sponsor: Dr. Willis Weigand

Ligands are known to bind to metals to form complexes, catalyze reactions, or react chemically on their own. Ligands bound to metals often exhibit diminished or enhanced catalytic properties as compared to the free ligand, as is the case with Cisplatin, an anticancer organometallic complex. 5,5'-Dithiobis(2-nitrobenzoic acid), or DTNB, Ellman's Reagent, has been shown to have antiviral and extracellular matrix (ECM) glycoprotein inhibitive properties stemming from its ability to disrupt disulfide bridge formation. Additionally, research of DTNB has suggested that it is a potential candidate for complexation with a soft-acid metal due to the prominent sulfur- π orbital interactions that occur during unit packing which could pose as sites for metal attraction. The focus of this study is primarily to determine if DTNB forms a complex with Cu(I) from tetrakis(acetonitrile) Copper(I) hexafluorophosphate or Co(II) from Cobalt(II) acetate tetrahydrate. Future studies could be used to test other soft-acid metals for complexation with DTNB, or to examine the antiviral properties of a DTNB-metal complex compared to the free ligand.

130. Antioxidant Prevention of Triglyceride Rich Lipoprotein Oxidation

Tim Williams, Chemistry and Biochemistry Department

Sponsor: Dr. Gulnar Rawji

Every year 935,000 Americans suffer heart attacks; nearly 610,000 result in fatality. Previous studies link the formation of atherosclerotic plaque to oxidized LDL particles, but as ultracentrifugation technologies have advanced, other members of the lipoprotein family, such as triglyceride rich lipoproteins (TRL), can be more easily studied. Free radical oxidation of LDL leads to plaque formation and heart disease; since TRL transport dietary fats to cells and are the metabolic precursors of LDL, oxidized TRL particles may also contribute to atherogenesis development. Our research delves into the ability of antioxidants to protect TRL particles from oxidation. Several natural product antioxidants including resveratrol, alpha tocopherol, catechin, glutathione, and n-acetyl-cysteine were analyzed for their ability to prevent oxidation of TRL particles and whole plasma. TRL particles were isolated from human plasma via our novel ultracentrifugation ion technique and subjected to incubation with antioxidants; levels of antioxidant protection were determined based on the detection of conjugated diene formation at 234 nm and FRAP analysis. The results reveal that nanomolar antioxidant concentrations are most effective at preventing TRL oxidation. FRAP analysis of these antioxidants incubated with plasma indicates that catechin is the most effective at preventing TRL oxidation. Future studies should focus on similar nonpolar phenolic antioxidants in their ability to prevent oxidation of TRL particles.

131. Supranational Spanish Dialects, Proficiency, and Attitudes
Marco Alcocer, Modern Languages and Literatures Department (Spanish)
Sponsor: Dr. Abigail Dings

The days of Texas being under a Mexican flag have passed, yet the culture and language remain woven into the fabric of the land. Spanish is part of Texas. Generations of heritage speakers of Spanish, along with recent immigrants from Spanish-speaking countries, have maintained and transformed the Spanish spoken in the region. Spanglish, Pocho, Tex-Mex, Chicano Caló, or whatever you may call the Spanish spoken in the region contains numerous linguistic features typical of language contact situations, including lexical borrowings and code-switching. The present investigation concentrates on the attitudes towards Spanish and its regional varieties by three different Spanish heritage groups: native speakers from Mexico City, Mexican immigrants in Texas, and second generation Mexican-Americans in Texas. The data analyzed in this study originate from interviews and questionnaires examining language use, language attitudes, and identity. I hypothesize that the Spanish dialect, Spanish proficiency, and self-identity are the main factors that determine the attitudes participants have towards the different Spanish dialects spoken in Texas.

132. Serving the Community: Bilingual Services in Nonprofit Organizations
Zoe Arispe, Modern Languages and Literatures Department (Spanish)
Sponsor: Dr. Abigail Dings

In order to serve their community, it is vital that nonprofit organizations provide services for all potential clients, including those with limited English proficiency (LEP). Drawing from Wilson (2012), who found that nonprofits play a prominent role in advancing language access for LEP individuals in Philadelphia, this study explores issues surrounding serving Spanish speakers with LEP in the context of Texas. The primary data in the study consists of interviews with employees at various nonprofits located in the state of Texas. The interviews explore the demographics of the clients, how LEP clients are served, the challenges associated with providing bilingual services, and agency strategies for facing challenges. In addition, copies of pamphlets (in English and Spanish), pictures of signs and other writings inside and outside the premises, and each nonprofit's website are analyzed to identify how each nonprofit reaches out to their clients who are not English proficient. The ultimate goal of this study is to identify the benefits and challenges of offering bilingual services and how these services may be modified so nonprofits can best serve their communities.

133. Male Models: American Mass Culture and Constructions of Masculinity in Rosa Montero's *Amado Amo*
Jacob Brown, Modern Languages and Literatures Department (Spanish)
Sponsor: Dr. Catherine Ross

The American media plays a subtle but important role in the reproduction of oppressive models of gender in *Amado Amo* (1988) by Rosa Montero. The novel reflects the growing cultural influence of the United States in Spain as it transitioned to democracy and opened its economy to foreign participation. This period after Francisco Franco's death supposedly meant the beginning of the end of dictatorship, oppression, and patriarchy in the country. However, American cultural models of masculinity helped fill the void left by the dissolution of political patriarchy. The main character of *Amado Amo*, César, works for an American company called The Golden Line. In order to escape the dog-eat-dog office culture there, César consumes mass culture in the form of American comic books, music, and magazine ads. Ironically, these

media only reinforce his insecurity by representing men as always strong and in control. As César does not fit within such a restrictive model of masculinity, he suffers from an existential crisis. Many studies on Montero have focused on the media's harmful representation of gender as a binary system. However, scholarship has scarcely studied the connection between the media's U.S. origins and César's depression in *Amado Amo*. Therefore, this work will analyze the relationship between U.S. cultural influence and the perpetuation of patriarchal oppression in Spain during the Spanish Transition. Looking beyond the end of the dictatorship, the work will show the invisible patriarchy that continued oppressing not only women but also men in Post-Francoist Spain.

134. "Una Foto de Guerra:" La Representación de Memoria en la Obra de Carlos Ruiz Zafón
(*Presentation in Spanish*)
Lauren Fellers, Modern Languages and Literatures Department (Spanish)
Sponsor: Dr. Catherine Ross

Este ensayo examina la serie de "El cementerio de libros olvidados," escrito por Carlos Ruiz Zafón, que consiste en tres libros: La sombra del viento, El juego del ángel, y El prisionero del cielo. Analizo su obra a través de la teoría de la memoria cultural, usando las definiciones elaboradas por Astrid Erll y Jan Assman, para examinar la manera en que la serie trata con la memoria, y la memoria de la Guerra Civil y la dictadura en particular. Propongo no simplemente que la serie pertenece a la memoria cultural, sino también que la actitud hacia la memoria, la identidad cambiante de los personajes, y la descripción de los lugares reflejan y promueven – intencionalmente o no – una identidad española basada en un deseo de enfrentarse con un pasado reprimido y doloroso, y, simultáneamente, de mantener cierto nivel de estabilidad por relegar lo político a la sombra.

135. Adult Spanish Speakers' Attitudes Towards English Use
Maria Gonzalez, Modern Languages and Literatures Department (Spanish)
Sponsor: Dr. Abigail Dings

Los adultos que aprenden inglés como segundo idioma constituyen una población que no ha recibido mucha atención en los estudios. El uso de inglés puede atribuir a relaciones además de también ser un modo de comunicación para gente en varios contextos. Las barreras lingüísticas afectan el entendimiento de la cultura y costumbres que contribuye a formar durante tiempo un sentido de pertenecimiento al país anfitrión de los recién llegados (Adamut-Trache, 2012) . Los participantes en el estudio presente son hablantes del español que inmigraron a los Estados Unidos como adultos. Los datos consisten en entrevistas que examinan sus actitudes y percepciones hacia el uso del inglés en los contextos del hogar, con su familia, las escuelas de sus hijos, las relaciones con los maestros de sus hijos, y otros lugares públicos. Mi hipótesis es que el inglés es una necesidad para estos hablantes en todos los contextos y que existen barreras con su nivel de inglés que influyen las relaciones y interacciones que tienen en varios contextos, sin importar el número de años que hayan vivido en los Estados Unidos. Con el estudio se podrá entender el lugar que tiene el inglés en la vida diaria de personas inmigrantes, además de sus actitudes en relación a su propio inglés.

136. Buddhist Monks and Violence in Tibet
Kevin Lentz, English Department, Philosophy Department
Sponsor: Dr. Patricia Schiaffini

My paper will deal, primarily with the social history of Tibetan Buddhist Monks and their peculiar relation to violence. Primarily, there seems to be a strange idea in the West that

Buddhist monks, specifically in Tibet, are a peace loving people who would never condone political violence. This view is no doubt propagated by the ideas of the very public Dalai Lama in recent years and his political program of the “third way”, a kind of path mediating between total Tibetan independence, and absolute Chinese subjugation. The point of my paper will largely be a historical study of Tibetan monks and violence. To be brief, Tibet, as a sovereign nation prior to middle of the twentieth century, was actually built upon violence carried out by Mongol armies under the sway of the Buddhist monks. My method, therefore, will be to delve deeply into a number of historical texts, and try to render what I find in easily intelligible terms. In conclusion, we should rethink how we interpret (or fail to interpret) Tibet and the role of religion in relation to political violence.

137. You are the Monkey King: Ideas of the Self in Reading *The Journey to the West*
Dr. Carl Robertson, Modern Languages and Literatures Department (Chinese)

The Journey to the West is a long story cycle or fantasy/picaresque novel about a mischievous monkey and the Buddhist monk he helps which appeared in final form in the sixteenth century in China. It is arguably the most popular story in all of East Asia: Japan, Korea, China and Taiwan, Vietnam and Tibet. But it is quite different from other similar works (either as extended fiction or mythic fantasy) and it is difficult to label or analyze. Perhaps because of this no other work of fiction had as many commentaries in traditional China. In addition, throughout the world numerous movies, personal narratives, novels, cartoon series and video games have borrowed extensively from the book. In studying *Journey to the West* and its commentary traditions I have found one salient pattern, which is that the story of the Monkey seems to encourage a firm idea of unique individual purpose and identity. You are the Monkey King.

138. Tibet Women in Religion
Jamie Rogers, Modern Languages and Literatures Department (Chinese)
Sponsor: Dr. Patricia Schiaffini

Women in Tibetan history have typically played minor roles in both religious and governmental affairs. In order for women to have their names mentioned in the Tibetan historical archives they would either need to be of noble birth or a foreign noble married into the royal family. Women are also rarely referenced in regards to religion unless they set themselves apart by acting out in an extremist manner. As time progressed the role of women in Tibetan religion slowly increased, but they still appear marginalized in modern day recognition of Tibetans who are fighting for their religious and political autonomy. I wanted to uncover how women, specifically Tibetan nuns, function in Tibetan religious society and under what social and religious constraints they operate. Due to the overlap of politics and religion in the Buddhist world the efforts made by women affect both aspects of Tibetan life. I found that even though women are referenced less in regards to the Tibetan struggle the role that they play is not a minor one. Nuns have taken to protesting just as successfully as their male counterparts in a peaceful manner. Women who are arrested and imprisoned are facing the same brutal punishment by Chinese forces. Despite the fact that women have been receiving less attention and appreciation in regard to Tibet’s struggle their hardships and contributions are numerous and growing. As women continue to step up and step out in Tibet they are redefining the way that Tibetans are fighting for their autonomy.

139. Strategies for Spanish-Language Maintenance
Rebecca Merino, Modern Languages and Literatures Department (Spanish)
Sponsor: Dr. Abigail Dings

States along the Mexican border of the United States have large Spanish-speaking populations, including family groups that have been in the region for generations along with more recent immigrants. Although historically we have seen that language shift towards monolingual English speaking begins in the second generation and is generally complete by the third generation (Alba, 2004), recent research has shown that parents, particularly those of higher socioeconomic status, play an important role in promoting Spanish language maintenance (Tran, 2010). In this research project, I examine the language maintenance of Spanish in Texas from the immigrant generation, the parents, to the second generation, the children who are born here in Texas. By means of interview with parents of school-age children, I research parental perceptions of the importance of maintaining the heritage language as well as the strategies employed by the parents to promote Spanish-language use and maintenance inside and outside the home.

140. Hispanics and Spanglish: An Investigation of Attitudes About Spanglish Between Different Generations of Spanish Speakers
Jessica Parada, Modern Languages and Literatures Department (Spanish)
Sponsor: Dr. Abigail Dings

What does it mean to use Spanglish? I conducted interviews with people born in a Spanish-speaking country and the first generation American born in order to examine the attitudes of these two generations on the use of Spanglish rather than standard Spanish. I hypothesize that the Hispanics born in Spanish-speaking countries will feel more negatively towards Spanglish than U.S.-born Hispanics. The findings help us understand more about motivations for using Spanglish and the values placed on its use by various members of the speech community.

141. Linguistic Landscape of Georgetown, TX
Anthony Pritchett, Modern Languages and Literatures Department (Spanish)
Sponsor: Dr. Abigail Dings

In multicultural United States, we notice the presence of other cultures in our everyday lives. In particular, we see a proliferation of minority languages, particularly Spanish, in local signs and advertisements. Many businesses, including panaderías (bakeries) and discotecas (music stores), cater to the Spanish-speaking populations in our communities and contribute to the multilingualism of the linguistic landscape. Spanish language signage and advertisements can be seen as a positive indicator of the vitality of Spanish in a community. The present study focuses on the signage displayed in the store windows in areas of Georgetown. The data collected include digital photographs taken of signs displayed in local business establishments, which are then analyzed for a variety of linguistic features. In addition, I collected data via a questionnaire aimed at gathering a more qualitative human perspective on language use in the businesses analyzed. The primary goal of my study is to examine the vitality of the Spanish language in a predominantly English speaking community.

142. The Social Significance of Spanish Use in the Restaurant Industry
Noelle Webster, Modern Languages and Literatures Department (Spanish)
Sponsor Name: Dr. Abigail Dings

The prevalent use of Spanish in the restaurant industry between both native and non-native speakers of Spanish creates a linguistic market where employees can utilize both languages in a bilingual context. Previous studies have shown that the use of Spanish in workplace settings can serve as more than just a means of communication by reinforcing both positive and negative social norms and cultures among bilingual employees in the restaurant industry (Barrett, 2006; Callahan 2007). Through ethnographic observations and interviews with bilingual employees, I examine the social significance of the use of Spanish in the restaurant setting. I hypothesize that the use of Spanish by both native and non-native Spanish speakers creates a sense of solidarity among bilingual employees while demonstrating and reinforcing positive language ideologies within the context of a local Mexican restaurant. The results of this study help further explain the social significance of the use of Spanish in the restaurant industry.

143. How Shocking: Creating a Brechtian Audience
Rachel Anderson, Theatre Department
Sponsor: Ms. Kerry Bechtel

Bertolt Brecht developed his *Verfremdungseffekt* or V-effect to separate the audience from any emotional attachment they may develop while watching a theatrical production. He desired his audiences to shout at the actors: “Why are the characters doing such things?” rather than “The character is doing that because the world will never change.” In order to create a reaction, Brecht employed the following theatrical techniques: projecting illustrations, inserting songs, and having stage designs that show the lights, ropes, and electrical cords. Actors may even speak to the audience, break character, and lecture them about the character they are portraying. This style of theatre was designed to shock the audience, to make them feel disconnected, to question the action on stage rather than to submit to it. Unfortunately, these tactics only led people to rethink society rather than take action. The subject matter and issues that Brecht addressed are still relevant today. However, the tactics he employed no longer shock audiences. Audiences attend the theatre and submit themselves to the magic because it is easier than reacting to the true issues in the world. It is time to re-examine how Brecht's plays are produced and move past the actors, set design, and stage to look closer at the audience. A study of the behaviors and reactions of the audience is crucial in order to use the V-effect successfully. By taking a closer look at Brecht’s play *The Good Person of Setzuan* and the importance of the audience as a component to a theatrical event one can provide a new set of guidelines for a theatrical audience that might provide for true social change.

144. Even if Their Faces Fall Off
Abby Birkett, Theatre Department
Sponsor: Ms. Kerry Bechtel

Alternative comedy has replaced theatre in the role of effector of social change and molder of social discourse for people under thirty by utilizing many Brechtian methods – intentionally or not. Bertolt Brecht believed in a certain kind of audience, but never quite succeeded in creating it. The audience already exists in intelligent, critical thinking individuals, who are engaged in the political climate and the world around them. These people, however, many of them under 40, are not going to see theatre on a Saturday night. They are attending comedy clubs, queuing up Netflix and watching clips of their favorite comedians on YouTube. Comedians have something

to say, and it is their message that is reaching people under forty; referenced in conversations on college campuses, in coffee shops and bars, and is being posted and retweeted through the stratosphere. The voices of people like Louis C.K., Stephen Colbert, and Sarah Silverman are inviting audiences to think critically about themselves, the world around them, and the systems at work in it, precisely what Brecht aimed to do with theatre. It is time for theatre artists to engage with the politically conscious, socially engaged “under-forties,” by looking towards alternative comedy to rekindle the honest and empathetic story-telling necessary to engage, incite, and inspire. By investigating the ways in which Brecht’s *Gestus* and the Alienation Effect are at play in in alternative comedy and the performer-audience relationship created therein, the extent to which Brecht’s audience thrives today in the clubs, comedy houses and bars where alternative comedians perform will become clear.

145. Not So Epic Theatre: The Influence of Stanislavsky in the Works of Bertolt Brecht
Chase Brewer, Theatre Department
Sponsor: Ms. Kerry Bechtel

Bertolt Brecht’s epic theatre was created with the express goal of educating the masses on particular social issues. This type of theatre called for a precise acting style with the specific purpose of removing the audience from the play so it could be viewed without emotion. This was accomplished through Brecht’s use of *Gestus* and *Verfremdungseffekt*, two essential components of his acting style created with the express intent of alienating his audiences from emotional influences. These alienation techniques are rooted in Eastern theatrical technique and practiced within the Chinese Opera instead of the more traditional Aristotelian elements common in Western theatre. This new form of performance seemed to be in direct opposition to the realistic performance technique pioneered by Russian theatre practitioner, Constantin Stanislavsky. While Brecht claimed that his new, original acting style was created independently of Stanislavsky’s acting style, it is clear that Brecht drew a great deal of his theoretical ideas from the acting theories developed by the Russian artist. These parallels can be found through the analysis of Stanislavsky’s, *An Actor Prepares* and Bertolt Brecht’s numerous theoretical essays collected in *Brecht on Theatre: The Development of an Aesthetic*. Through the comparison of both *An Actor Prepares* and *Brecht On Theatre* along with using performances from Stella Adler and Helen Weigel as a lens (two actresses who worked intimately with Brecht and Stanislavsky) similarities between these two theatre practitioners can be seen and it can be argued that their theoretical ideas and concepts may not have been as divergent as previously believed.

146. Costume, Identity, and the Gestus of Gender in Brecht's *Good Person of Szechwan*
Andja Budincich, Theatre Department
Sponsor: Ms. Kerry Bechtel

Bertolt Brecht’s *The Good Person of Szechwan* is a presentation of the gendered quandary about the difficulty of being good in a capitalist society. The protagonist Shen Te relies on a male alter ego, Shui Ta, in order to survive while her friends and neighbors attempt to bleed her financial resources dry. By taking on a strong male identity, she may remain good in her female identity. Brecht’s epic acting style lends itself to a performance of these roles that defamiliarizes the audience from identifying with either one. Drawing on Judith Butler’s theory of gender performance, I posit that the act of removing and donning costume signifiers reinforces the *gestus* of masculine and feminine behavior. Costume is a presentation of one’s identity, and I will argue that the exposed act of wearing masculine or feminine costume supports the

alienation of the audience from those traits of strength and goodness that Brecht associates with gendered identity.

147. A Middle Eastern Mother Courage
Stetson Gilchrest, Theatre Department
Sponsor: Ms. Kerry Bechtel

As a director, one recontextualizes plays to make the theatre experience more immediate and to illuminate themes making them more visible to the audience. *Mother Courage and Her Children* has been recontextualized many times since it was written in 1939. The most notable is the 2009 Tony Kushner adaptation, directed by George C. Wolfe. While this production was placed in an unspecified country during an unspecified conflict, this play could be placed in a more specific time and place but not without challenges. With this in mind, could *Mother Courage and her Children* be removed from its original context of The Thirty Years War and placed in the Arab/Israeli conflict today? In doing this one must examine the role of women in the Middle East. Could a woman of such character exist in the context of this current conflict? Utilizing political and social context along with the script of *Mother Courage and Her Children*, one can discover how and if a recontextualization might create a new and exciting production of this play, drawing attention to the plight of women in this part of the world and the pain and destruction war creates for women, specifically.

148. Bertolt Brecht's Influence on Modern Scene Design
Leah Korenstein, Theatre Department
Sponsor: Ms. Kerry Bechtel

Bertolt Brecht's reformation of stagecraft has become the foundation on which modern scene design is based, even though we do not attribute these norms to Brecht. This influence of Brecht's stagecraft innovations can be seen in the visible instruments, moving machinery on stage, mixed media, and minimalistic scenery to which we have become accustomed. Brecht worked closely with Erwin Piscator, a stage director and designer, and Casper Neher, a stage designer, to develop the essentials for his unique approach to theatrical production what he conceived of as "Epic Theatre." The components of this stagecraft have been utilized in non-epic theatre productions such as those designed by Christian Bérard and Josef Svoboda. These two stage designers take different approaches to stage design; Bérard's works rely on scenic painting while Svoboda uses modern sciences and technologies. By examining the works of these two designers, one can see the heavy influence that Piscator, Neher, and Brecht's Epic Theatre had on modern stagecraft.

149. Evolution of the Dalai Lama
Shannon Hulett, International Studies Program
Sponsor: Dr. Patricia Schiaffini

We will explore the 13th and 14th Dalai lamas. Looking at both the pre and post Mao Zedong regime as a historical point of reference, we will examine how life in exile has affected the 14th Dalai Lama. More specifically we will examine the changes the Dalai Lama might face both in his the role as political leader and as spiritual leader of the Tibetan Autonomous Region (as the reincarnation of the Buddhist bodhisattva of Compassion). We will examine Chinese government controls of the political and spiritual role of the Dalai Lama. More specifically, we will examine the future of the Tibetan Prime Minister in exile, the Panchen Lama and the future of recognized lamas.

150. Brecht and His Worlds
Emma Martinsen, Theatre Department
Sponsor: Ms. Kerry Bechtel

This presentation explores the relationship between Brecht's plays and the audience. In an article by Brian Crow, one discovers how an audience in Nigeria with a different perception of morality, affects the perception and interpretation of a play; such as *The Good Person of Szechwan*. This paper explores other interpretations of Brecht's plays and compares how different audiences and societies connect to Brecht's themes and methods in different ways. Using Mikhail Bakhtin's *Rabelais and His World* as a lens will illuminate where some of Brecht's ideas and methods may have originated and will shed further light on how his work is received by different societies. Further, it will support how closely societies and their audiences, discussed in *Rabelais and His World*, compare to Brecht's different audiences and societies.

151. Interpretation in Kurt Weill's *Pirate Jenny*
Corinne Mears, Theatre Department
Sponsor: Ms. Kerry Bechtel

Behind *Mack the Knife*, *Pirate Jenny* is the most performed song of the Bertolt Brecht and Kurt Weill collaboration. Performances range from classics recorded by Lotte Lenya, Nina Simone, and Ute Lemper to the contemporary covers by Dresden Dolls' Amanda Palmer and Cyndi Lauper. Seeking support from the analysis of the music by musicologists concerned with Weill's works, primary reviews of *Three Penny Opera*, and discussion over Brechtian performance theory, one finds that most scholarship is concerned with informing the audience of Weill's significance and contribution to the music world. This research paper will take the understanding of Weill's musical contributions and ask why the performance, and interpretation of "Seeräuberjenny" is so revered by audiences and performers alike.

152. Money can't buy happiness: An Exploration of Capitalist Themes in Bertolt Brecht's *The Good Person of Szechuan* and Arthur Miller's *Death of a Salesman*
Chaz Sanders, Theatre Department
Sponsor: Ms. Kerry Bechtel

In the *Paris Manuscript*, Karl Marx says, "Political Economy regards the proletarian... like a horse, he must receive enough to enable him to work. It does not consider him, during the time when he is not working, as a human being." In Bertolt Brecht's *The Good Person of Szechuan*, Shen Teh is miserable because she must adopt a capitalistic alter ego, which in turn makes her become selfish and dishonorable. In Arthur Miller's *Death of a Salesman*, Willy Loman is miserable because he is incapable of achieving the American Dream, as he fails with his family and with his job. While Bertolt Brecht uses the theatrical constructs of epic theatre in *The Good Person of Szechuan*, and Miller takes a realistic approach to his *Death of a Salesman*, both plays illuminate juxtaposition between happiness and capitalism and argue that the constructs of capitalism enable the worker to be both happy and successful.

153. The Great Escape: A Comprehensive Look at Education and Escapism in Theatre
Phil Smith, Theatre Department
Sponsor: Ms. Kerry Bechtel

During the period of the Great Depression and leading into WWII, escapist theatre had resurged in popularity as audiences sought pure entertainment as a means of coping with the issues

faced at the time. At the same time however, theatre was also being used by certain playwrights as a tool for social change and education, hoping to leave audiences seeking certain truths and facing the reality of the world in which they lived. These different forms of theatre, as well as other art forms, showed the different ways in which audiences could be affected during these periods in history. German playwright Bertolt Brecht's *The Resistible Rise of Arturo Ui*, was an educative, social change play, using 1930's Chicago as a stand in for pre WW II Germany, and its main character, Arturo Ui, as an allegory for Hitler and his rise to power. *Blithe Spirit* by British playwright Noël Coward, was a comedy written during a period when England was suffering severe casualties at home and abroad during WWII. The playwright's goal was to create an escapist comedy, giving his audience a brief reprieve from the tragedy around them. Both plays, different in their goals and style, serve a greater purpose, and though many critics and artists, such as Bertolt Brecht, would claim that the main purpose of art is to educate and leave its audiences enlightened, it is important to remember the need for escapism and pure entertainment, as its effects on audiences can be just as profound and rewarding. Utilizing theory and research on both playwrights and the specific plays cited above, one can find out how both education and escapism play a significant part in entertaining audiences in times of political and social strife.

154. Mahogany in Context: Brecht's Commentaries on Commodification
Megan Vestal, Theatre Department
Sponsor: Ms. Kerry Bechtel

Commodification occurs when goods or services that are not usually regarded by the market as commodities, gain a price tag and become valued in monetary terms. When human values such as love, fulfillment, and happiness gain monetary value, they immediately become subject to the economic laws of supply and demand. In the *Rise and Fall of the City of Mahogany* by Bertolt Brecht, the capitalist pleasure utopia of Mahogany (meaning "net") has one law: "You may if you can pay." However as demand for the pleasure goods and happiness Mahogany sells declines, prices fall, and the value of these commoditized goods falls in the eyes of the human race. Once the price plummets low enough, the worth of happiness or love is actually worthless, and if these are the invaluable dreams of the human race, then they are now valueless as well. Value driven down by mass consumption, consumption driven by frantic escapism, these three elements work in tandem to create the Rise and Fall of Brecht's pleasure city Mahogany. The fate of Mahogany is flames, but does that mean that capitalism is doomed to capsize upon itself? This interpretation is too limiting. Economic theory, the original text of Mahogany, and Brecht's history of political criticism of the Weimar Republic, will demonstrate that this opera was not displaying the fall of capitalism in America, but rather putting face to the elements that create and perpetuate destructive tendencies in capitalist systems.

155. CodeQuest
Paris Nelson, Rob Campbell, Matthew Krall, Carter Cowan, Garhett Bonneaux, Christopher Gilbert, Alexander Hicks, Math and Computer Science Department
Sponsor: Dr. Richard Denman

CodeQuest is a web-based learning tool written in Ruby-on-Rails for beginning Java programmers by the 2014 Southwestern University Computer Science Capstone Class. CodeQuest allows users to solve programming problems in Java while giving helpful and descriptive error messages. The problems have low overhead: short problem statements (like an exam) and immediate feedback in the browser. The problems could be used as homework, self-study practice, in a lab, or as live lecture examples. The idea came from our experience learning

Java in the Computer Science 1 course where other web-based learning tools were not descriptive or helpful enough to fully cover the material. CodeQuest provides classroom management facilities allowing professors to supervise and review students' prior submissions as well as their overall progress in the course. CodeQuest is an agile software development by the senior capstone class for the use by students in the Computer Science 1 course.

156. Endocannabinoids Influence Female Sexual Motivation
Nicoletta Memos, Bekah Vela, Animal Behavior Program
Sponsor: Dr. Fay Guarraci

The present study investigated the role of the endocannabinoid system on sexual motivation in female rats. In Experiment 1, ovariectomized females primed with estrogen were administered the endocannabinoid antagonist SR171416A or vehicle and tested for partner preference. During the first 10 min of tests, subjects could spend time near either a male or female stimulus animal placed behind a wire mesh. During the second 10 min of tests, subjects had unrestricted access to both stimuli. SR females visited the males less frequently than the controls during the contact phase of tests. In Experiment 2, naturally cycling females were first tested on the afternoon of estrous 20 min after a control injection. Approximately 2 weeks later, all rats were tested again on the afternoon of estrous 20 min after an SR injection. SR females visited males less frequently than the controls during the no contact phase of tests. Females were administered either vehicle or SR and tested in an Open Field. Effects of SR are unlikely a consequence of changes in general locomotion, because SR did not affect line crossings made during an open field test. In Experiment 4, OVX hormone primed females were administered the endocannabinoid agonist AEA or vehicle and tested for partner preference. AEA females spent less time with the males than the controls during the contact phase of tests, and visited the males more frequently than the controls. The results of the present study suggest that the endocannabinoid system may contribute to sexual motivation in female rats.

157. Women and Global Governance: Gender Inequality in the United Nations Framework Convention on Climate Change
Jessica Olson, Environmental Program, Feminist Studies Program
Sponsor: Dr. Joshua Long

It is broadly recognized that women are globally more negatively affected by climate change than men. Given that many women are seen as the primary caretakers for their communities and are also more employed in climate sensitive industries they have a greater risk of facing unemployment and other similar struggles as a result of climate disruption events, such as droughts or hurricanes. Not only are everyday roles and functions being altered by climate change, but women and children are also more likely to die or be exposed to violence during and following climate events. Given this vulnerability, women are key stakeholders when discussing climate change. Based on research completed in Fall 2013 under the supervision of Professor Joshua Long (Environmental Studies), this presentation details the composition of gender within the various badge colors (which indicate one's affiliation) at the Conference of Parties (COP) for the United Nations Framework Convention on Climate Change (UNFCCC). Countries' female participation were compared with the Gender Inequality Index from the (GII) from the Human Development Program highlighting trends and outliers. In addition, this presentation will serve as an avenue to inform the broader Southwestern and Georgetown communities about the lack of progress at the climate change negotiations and to inform the audience of the presenter's experience at the past two COPs.

158. Can You Make Change by Increasing Minimum Wage?
Andrew Banister, Math and Computer Science Department
Sponsor: Dr. Therese Shelton

Ever since the inception of a federal minimum wage in 1938 Congress has been responsible for setting this value. Today many argue the minimum wage is too low and should be increased. President Obama maintains “no one who works full-time should have to live in poverty.” Others claim that increasing the minimum wage will have detrimental effects. They assert it would increase global prices and inflation, while also increasing the cost of labor thereby decreasing the availability of these minimum wage jobs and hurting those it is meant to help the most. Congress has recently passed legislation to raise the federal minimum wage for government workers to \$10.10 per hour, and there is talks of increasing the federal minimum wage for all workers from \$7.25 per hour to \$10.10 per hour by 2015. Although the federal minimum wage has remained stagnant since 2009, many states have taken the minimum wage into their own hands increasing it above the federal value. My project analyzes and compares different states and evaluates the effects of an increased minimum wage, while also focusing on the effects of the 2007 economic recession on minimum wage employment.

159. The Hazards and History of Undergraduate Attrition
Heather Gronewald, Math and Computer Science Department
Sponsor: Dr. Therese Shelton

University attrition rates, defined as the percentage of students who have either been dismissed from school or left voluntarily, provide important information to both universities and prospective students. Students who leave their undergraduate educations prior to obtaining a diploma have significant financial impact on their institutions (e.g. lost tuition, housing and alumni revenue). Attrition rates can provide information to prospective students about institutions’ personal, financial, and academic support. Thus, rates are published and ultimately factor into the ranking system for undergraduate institutions. We model the attrition rates of traditional first-year students at the University of Texas at Austin, discussing the explanatory and predictive value of various models. There are interesting differences and similarities between transfer and first-year attrition rates, and we discuss ways to make reasonable comparisons. We then examine trends of first-year class characteristics over time (noting the impact of the “Top 10% Rule,” Texas House Bill 588), discuss the interdependent nature of potential indicators of attrition, and explore an application of time-series analysis to these trends.

160. Perspective Images: Finding the Optimal Viewing Point
Robert Lehr, Math and Computer Science Department
Sponsor: Dr. Fumiko Futamura

Perspective drawing and projective geometry are relatively young fields compared to other forms of art and branches of math, yet the current technique for finding the correct viewing point in a painting is still centuries old. As a reminder, the correct viewing point for a perspective image is the point in space where you place your eye such that the image does not appear skewed. That is, any other point in space will not quite create the sense of depth and reality desired in a perspective image. After some doodling in class sparked an idea, we decided to revisit this old technique from a new angle with a fresh perspective. The current technique requires circular thought, and we decided to be straight. We project a new straight-forward concept onto this plane of thought that harmoniously connects the points relying on little more than straight lines and ratios. Essentially, we discovered a method for finding the viewing point

using straight lines instead of curves. These initial findings merit further research into the subject, but applicability does not seem far off. This may lead to techniques that allow computers to compute 3-D spaces more effectively. Even if it does not, it gives us another option to view perspective paintings that we did not have before.

161. Exploring the Constitutive Rhetoric of Tom's
Rebekah Hubstenberger, Communication Studies Department
Sponsor: Dr. Davi Thornton

This presentation examines the advertising rhetoric for Tom's shoes. I focus on video advertisements. I look specifically at the video called "Why Ethiopia- Holiday 2008" (<http://www.youtube.com/watch?v=Oc05jh-8XUK>) which attempts to drive holiday sales up by proposing a goal of giving away 30,000 shoes in Ethiopia during the holiday of 2008. I argue that this rhetoric employs constitutive appeals to create a lifestyle brand, positioning the audience as do-gooders who benefit others through their own consumption. I argue that the founder of Tom's, Blake Mycoskie, is the ultimate exemplification of that lifestyle and his personal story is employed as chief part of Tom's rhetoric. In sum, a large part of the effectiveness of the rhetoric behind the Tom's advertisements is that it fits into the recent cultural phenomenon that is "brand aid." I will break my argument into three main sections. The first section examines how constitutive rhetoric is used in the video to create an informed consumer; the second section examines how the audience is constituted as compassionate; the final section examines how constitutive rhetoric is used to create agents of global change.

162. Apocalypse NOW: Women in The Book of Revelation
Marianne Brown, Religion Department, Feminist Studies Program
Sponsor: Dr. Molly Jensen

The way we see the end of our world brings light to many facets of how our world functions. By projecting our assumptions and biases on an apocalyptic back drop, we are able to magnify and uncover them. The representations of gender in the Book of Revelation shows elements of patriarchal society today. Violent expressions of masculinity and domination are juxtaposed with female characters - the bride, the mother, the whore - carrying significant cultural weight. The representation of men and women in apocalypticism is important because it reflects deeply held religious and cultural beliefs. Understanding the gendered power structures working within this expression helps us to better understand not only the apocalyptic imagination, but also the world we live in now (ending or not). As Susan J. Palmer asserts in her piece featured in *Secularizing the Millennial*, "myths and symbols mirror society and its natural environment." By analyzing different expressions of apocalypticism and cataloging the men and women in these works, I will uncover the complex relationship of masculinity, femininity and the end of the world.

163. Theory and the Prison of Heteroglossia: The Possibility of the Post-Theory Novel
Blake Carrera, English Department
Sponsor: Dr. Carina Evans

The study of literature is akin to the act of assembling a puzzle; we are given pieces and asked to divine a greater meaning. As Nicholas Dames' states, "If you studied the liberal arts in an American college any time after 1980, you were likely exposed to what is universally called Theory" (Dames 1). Theory, once intended as a tool to further one's understanding of a text, has become a prison in which the novel cannot simply be read as a text. In short, theory has become

a pervading literary language. Modern writers find themselves in this prison of theory. In Ben Lerner's *Leaving the Atocha Station* and Junot Diaz's *The Brief Wondrous Life of Oscar Wao*, the awareness of theory and heteroglossia becomes a malignant specter of anxiety in their novels. However, is there a way to move into a new sort of novel, in which both acceptance and resistance join together and open narrative once again? This project will explore these questions through an analysis of D.A. Miller's ideas of the "nervous ritual" of writing, the danger of M.M. Bakhtin's heteroglossia, and the endeavor of Eve Sedwick to move beyond the hermeneutics of suspicion. I posit that it is through an acceptance and awareness of theory that a new horizon is opened up in which the modern authorial voice regains agency and individuality.

164. Everybody Writes: Re-Imagining Reader, Writer, and Text in the Online Community
Katie McLaughlin, English Department
Sponsor: Dr. Eileen Cleere

Our capstone class was centered around "Theory and the Novel." I chose to examine traditional literary criticism in conjunction with the evolution of the novel in the online environment. I found that there is not yet considerable scholarship surrounding literary forms on the internet, and that there is currently no school of literary theory which accounts for the work being done in online fiction. By examining the relationship between reader, writer, and text within modes of fiction creation unique to the internet – fanfiction, narrative communities, and wikis – I argue that internet literature is a rapidly developing part of the literary conversation and therefore demands a new form of criticism with which to examine and analyze it. Because the scholarship for this issue is, very limited, my project required me to both analyze a significant amount of primary source research and to create a new set of working vocabulary in order to present this cutting edge literary work. Through this work, I found a rich network of novel, unexamined fiction unique to these online communities that demands the attention of a new generation of literary theorists.

165. SU Virtual: Creating Virtual Environments for the Future of Southwestern
Seve DeGrand, Dakota McDurham, Environmental Studies Program
Sponsor: Mr. M. Anwar Sounny-Slitine

Virtual campus tours are becoming a popular platform to introduce prospective students to universities and are often featured on admission websites. With evolving technologies, it is now possible to simulate the in-person tour experience through virtual environments. This student-led project worked to update Southwestern University's virtual tour from a static isometric representation of campus to a 3-D immersive virtual environment. Working with Google approved photographers, the student team created 360-degree panoramic 'photospheres' comprising campus. These panoramic points are publicly accessible on the Southwestern University website through a campus map built on a platform similar to the Google Maps platform. The points offer not only a 3D-immersive experience, but also display relevant information, still photographs, and even videos. The videos and information have been created and written by students. The project also contributes to indoor mapping in the geoweb through a Google Street view tour of The McCombs Campus Center which will become part of Google Maps. This new tour will allow prospective students to have a great look at the campus along with experiencing Southwestern as a whole. A surprising challenge in this project did not come from the technical aspects, but the process of grant proposal writing, gaining funding, and acquiring approval from all of the right people. In order for this project to be successful, the student team had to work with admissions, ITS, and Google. This presentation will outline both the technical and interpersonal skills that were needed to complete this project.

166. NGO Mapping: Charity at a Glance
Thomas Newman, Jen O’Neal, Environmental Studies Program
Sponsor: Mr. M. Anwar Sounny-Slitine

Uncovering reputable data and basic information about charitable organizations is difficult. When the organization is headquartered abroad, finding the data can be next to impossible. Until now, there has yet to be a program that incorporates an interactive geographical approach to mapping data on NGOs and non-profits. Charity at a Glance is fixing this problem. Charity at a Glance is an online resource that utilizes Google Maps Engine and GIS technology to visually display data about charitable organizations headquartered in Kenya. This mapping application gathers charity information available online, such as where an organization is located, how many beneficiaries it serves, and what kind of work it is providing for local communities. Once compiled, this information is embedded within a map that can then be utilized by going to charityataglance.org. Theoretically, once this initial organizational framework is created, Charity at a Glance could grow to include other regions of the world or act as a tool for analyzing more in-depth data about the organizations. Charities play an important role in Kenya and around the world. Charity at a Glance is here to put that work on the map.

167. Why Bigger May Not Always Be Better: A Comparison of Hatchling Development of Two Apple Snail Species, *Pomacea Maculata* and *Pomacea Megastoma*
Amber Cochran, Biology Department
Sponsor: Dr. Romi Burks

Aquaculture and aquarium trades represent primary vectors for transportation of aquatic species globally and the most likely sources for future invasive species. Some apple snails belonging to the genus *Pomacea* exhibit high fecundity. One species, *P. maculata* (formerly *P. insularum*), has established exotic, invasive populations in Texas, across the US Gulf Coast and worldwide. Another non-invasive species, *P. megastoma*, reaches larger sizes at adulthood than *P. maculata*, typically lives in lotic versus lentic systems and so far does not occur outside its native range. These two sister species share a number of common characteristics, including similar oviposition behavior (out of the water) and clutch appearance (spherical pinkish eggs). Recently, we conducted a comparative study of *P. maculata* and *P. megastoma* in their native habitat of Uruguay to investigate juvenile development of hatchlings. Our first experiment used a 2x2x2 factorial design (N=8) to test how species identity and size (*P. megastoma*, *P. maculata*), water quality (enriched with fish cue or not) and food resource (lettuce or aquatic macrophyte *Egeriadensa*) influenced hatchling growth over 15 days. With individual measurements still ongoing, preliminary observations suggest that *P. megastoma* hatchlings appear more sensitive to their environment (higher mortality) and require more conducive conditions for survival. We will investigate the sensitivity of *P. megastoma* further by comparing hatching efficiencies of 19 freshly laid *P. megastoma* egg clutches held dry (N=10) or placed under wet stress (N=9). Overall, understanding of juvenile development may provide insight into what makes a successful invasive apple snail.

168. Double Attack on Invertebrate Bias: Theory and Banjo
Joshua Page, Biology Department
Sponsor: Dr. Romi Burks

Over the last several decades our society witnessed many ‘rights revolutions’ come to fruition—racial equality, the feminist movement, and most recently the animal rights movement. However, even in the animal rights movement, a focus occurs only on certain animals,

particularly the cute vertebrates that live on farms, or animals about which we grew up singing songs. However, the majority of animals in the world look nothing like the cows and chickens we think of when considering animal rights. The invertebrates - the creepy, crawly, and sometimes poisonous - make up the significant majority of the world's biodiversity. This project seeks to recognize, address, and propose possible solutions to our invertebrate bias. The first part of this presentation includes a philosophical analysis of invertebrate rights and ethics, specifically looking at the work of Peter Singer and the relationship of invertebrates to the Animal Rights movement as a whole. This project provides a theoretical background and justification for the need to consider invertebrate rights. The second half of the project transitions from theory to practice, emphasizing the need for both components in any fully realized movement. The original banjo lyrics will model the tradition of 1960's folk protest songs and the works of Pete Seeger. Collectively, the theory-based need to combat invertebrate bias combined with the performance of a banjo song will encourage the audience to consider more "love" and respect for our spineless biological cousins.

169. Pink Eggs I Am: The Making of a Clutch Deposit Informing the Public About the Invasive Apple Snail (*Pomacea maculata*)
Rebecca Petro, Biology Department
Sponsor: Dr. Romi Burks

When communicating science to the public, the process must not intentionally "dumb down" the information. Instead, the idea should better convey the knowledge in a different, more easily comprehensible format to help avoid misunderstandings. This project proposes to use art, specifically sculpture and 3-D animation, to educate the public about an environmental issue. *Pomacea maculata*, a snail species that has invaded Texas and the US Gulf Coast (Karatayev et al 2009), has negative impacts on native plants and animal. The spread and continued establishment of new populations suggests that the public needs to be educated on the species and their impact. Based on dissections, photography and detailed scientific observations, I use a 3-D animation to demonstrate how their anatomical and reproductive form fits function and how this may contribute to their success as an invasive species. I then compare *P. maculata* to similar, but not as successful, invasive species. At the end of my animation, I wish for the public to 1) understand how the anatomy of *P. maculata* makes it a successful invasive species; 2) be able to explain how the fertilization and packaging process of the eggs occurs; and 3) be able to understand why the snail species' reproductive organs have developed into their current form. By using 3-D animation to teach the subject matter, the viewer can experience the science; instead of making assumptions and misunderstanding diagrams. Art has the ability to engage people emotionally, causing them to become involved on a deeper level.

170. *Conflixere Christiani*: Christian Movement into Rome and the Subsequent Response in the First Century AD
Morgan Gribble, History Department
Sponsor: Dr. Melissa Byrnes

There has been little exploration into the effects of the spread of Christianity to Rome, and the subsequent Roman responses. By using a transnational perspective of the unique circumstances and the growth of Christianity in Rome, a clearer picture emerges of the movement and establishment of Christians in the capital city, as well as events that would lead to widespread persecution. The lack of an apostle meant that the Christians in Rome were divided into various groups that conflicted with one another and eventually drew the concern of the Romans. This

can be seen in primary sources, as well as the Christian expulsion from Rome, the Great Fire of Rome, and the persecution of Diocletian.

171. Seeing Devils in the Eyes of Our Enemies: an Analysis of Demonization in American Journalism during World War II
Shelby Morales, History Department
Sponsor: Dr. Melissa Byrnes

My research traces the American perception of Hitler from 1922 to 1945 in The New York Times and many magazines like Time, Newsweek, and The Nation. Giving special attention to word choice, tone, recurring themes, and emphasis placed by the authors when reporting on Hitler, I was able to capture the essence of the American public opinion. By comparing these primary sources with today's secondary sources it is possible to recognize the demonizing bias that causes these texts to tell different stories. In severe contrast to today, Hitler was not perceived as a diabolical force before or during WWII. Although there were considerable factors that caused dissatisfaction towards him (anti-Semitism, lawlessness, and warmongering), he was not demonized for these reasons. Instead these events resulted in perceptions that he was insane, someone to be feared, comically incompetent, and in some cases justified based on his actions, his past, and his psychological tendencies. There was one significant moment of true demonization during his reign and that occurred in response to the violent political purge of 1934, the Night of the Long Knives. This shows us that during his own time, Hitler was seen more like a Napoleon or a Caesar than an Antichrist and it was only this instance of killing his own supporters that he was perceived as crossing the line of wrong vs evil. It would not be until the reality of the Holocaust set in much later that the demonization that we know it today would come to exist.

172. 'Literally, My Money Comes From How Happy I Make Them': The Positive and Negative Consequences of Emotional Labor Among Restaurant Servers
Brianna Billingsley, Sociology and Anthropology Department
Sponsor: Dr. Maria Lowe

This ethnographic study draws on the works of both Goffman and Hochschild to understand why restaurant servers at a family-style, national chain restaurant engage in emotional labor and how they cope with its demands. I collected data from September through December 2013 using participant observation, face-to-face, semi structured interviews with servers, and an analysis of organizational materials. Findings both support and extend Goffman's and Hochschild's works. Servers report engaging in emotional labor in the front stage for utilitarian reasons – they are required to do so by the restaurant and they also want good tips from customers. Although subtle individual means of resistance to emotional labor are employed in the front stage, the backstage is where servers use more explicit collective forms of symbolic resistance. These efforts, which include venting, joking, and bantering, serve positive functions including letting off steam and building solidarity among workers. However, some of these coping strategies also have negative consequences – most notably, reinforcing racialized and classed stereotypes about customers. No previous research known to the author has examined the ways that coping with the emotional labor among servers may contribute to the reproduction of classed and racial hierarchies in both the front and backstage.

173. Helping through Privilege: Middle Class Volunteer Ideology and Experience
Heather Burns, Sociology and Anthropology Department
Sponsor: Dr. Maria Lowe

This research examines the role of social class in influencing middle-class individuals' motivations to volunteer and their experiences while volunteering at a prominent non-profit Catholic healthcare network in a large metropolitan area in the Southern United States. Through analysis of data from organizational materials and face-to-face interviews with hospital volunteers, this study suggests that middle- and upper-middle class hospital volunteers give back to balance their class privilege. Volunteering, especially when it involves direct contact with clients, provides an outlet for individuals to fulfill their perceived obligation, as privileged members of their community, to contribute their resources to worthy causes. Additionally, although respondents seek to accomplish the hospital network's mission to assist impoverished and sick community members, volunteers in this study respond to their class privilege in evasive and equalizing manners. The class blind perspective and lack of consciousness displayed by volunteers in this study are functions of their unchallenged class privilege and, contrary to the basic goals of volunteerism, contribute significantly to continued stratification among social classes. This study also finds that volunteerism is transmitted intergenerationally and that charitable values may be part of the middle-class habitus. Despite the numerous studies on social stratification and privilege, there is no research known to the author exploring the interaction of class privilege and culture and of perceived social obligation as it shapes adult volunteer environments and experiences.

174. "I am not Illegal, I am a Human Being. I Just Happen to be Undocumented:" Collective Identity and Personal Narratives of UT Undocumented Students
Lucero Castillo, Sociology and Anthropology Department
Sponsor: Dr. Maria Lowe

This paper examines how members of University Leadership Initiative (ULI), composed of undocumented individuals and allies, form a collective identity through a 'stories of self' narrative. This study also uses a social justice framework, to examine how the organization mobilizes to create a visible representation of undocumented students on campus as well as to create access for educational equity. Relying on in-depth interviews and participant observation conducted from August to November 2013, the findings suggest that ULI uses their personal narratives as a political act to mobilize by claiming of their identity through the use of the phrase 'Undocumented and Unafraid' to disclose their status and create visibility on and off campus. This paper adds to existing social movement scholarship by examining the political act of narratives used by a marginalized group to enact social change by strengthening their organizations collective identity. It also examines the different forms of discrimination and barriers at institutions of higher education, which cause strain on undocumented students' educational advancements.

175. "Protect and Serve Each Other:" Collective Action and Contentious Politics in a Police Accountability Organization
Kelsey Kisor, Sociology and Anthropology Department
Sponsor: Dr. Maria Lowe

This research examines the tactics employed by the Peaceful Streets Project (PSP), a police accountability organization in Austin, Texas. Specifically, this study explores the activists' reasons for addressing police accountability and why the majority of the members are white,

middle class men. Utilizing in-depth interviews, participant observation, and organizational materials, the findings suggest that collective action and contentious politics play roles in the activists' decisions to address police accountability and their measures for doing so. This research adds to the social movement literature by examining how collective action and contentious politics aids in the tactics for addressing police accountability and the racialized, classed, and gendered dynamics of member participation.

176. "Planning for Change in the Psychology Curriculum: Psychology Departments and the MCAT® 2015" - Survey of Psychology Departments
Tara Smith, Victoria Flores, Sociology and Anthropology Department
Sponsor: Dr. Edward Kain

Beginning in 2015, the MCAT® will include a new section with psychology and sociology material. This study examines how psychology departments at undergraduate universities are making changes to the curriculum to help prepare students interested in taking the MCAT®. We developed a survey to explore three basic research questions: What do they know about the upcoming changes in the MCAT®?; What have they done in preparation for these changes?; and do they have any best practices that could be shared with other institutions? Chairs of psychology departments in a national sample of national universities, national liberal arts colleges, regional universities, and regional liberal arts colleges were recruited via e-mail to complete an online survey. The survey included 10 items related to the three research questions. Upon completion of the survey, the respondents received a link to a website that provides various resources that may be of assistance in devising additional ways in which to assist students in preparation for the MCAT®. Although national universities were more likely to have heard about the new changes in the MCAT, they were not as likely to implement new revisions to the curriculum in order to better assist students. Some campuses however are willing to add additional courses focusing on the interrelations between psychology and medicine. Using this as further analysis we hope to create a discussion about the upcoming changes in the MCAT® while also making suggestions on how to better guide students who wish to take this exam.

177. The Influence of Minor Parties within Coalition Government
Daniel Jozwiak, Political Science Department
Sponsor: Dr. Alisa Gaunder

To what extent do minor political parties influence public policy? This paper looks at the Free Democrats (FDP) in Germany and the New Komeito (NKP) in Japan to determine how successful or unsuccessful minor parties are in influencing public policy within coalition governments. Using a comparative most different systems approach, this paper argues that minor political parties are most successful influencing policy when they have strong electoral support, a subnational presence, and when the policy issue is included within the coalition agreement. This paper first compares the ideology, supporters, and organization of the FDP and NKP, and subsequently compares the pre-electoral policy stances of the parties with their corresponding legislative outcomes to identify the causes of the successes and failures of each party's preferred policy position. Looking at economic and immigration laws of Germany and Japan reveals that minor parties do have influence in the policy making process.

178. Applying Sociological Research Methods Using a Community Survey
Jordan Richardson, Daryan Green, Jessica Jones, Monica Miller, Sociology and Anthropology Department
Sponsor: Dr. Edward Kain

The purpose of this research is to provide information about parent satisfaction to a local school. We began the process by interviewing two administrators from the elementary school to determine their goals for the research. We then developed a survey which was distributed by the school to all parents. Upon completion of the survey we analyzed the data and produced a written report of the results and of the survey. Analyses included frequency distributions of all survey items, including race/ethnicity, socio-economic income and other demographic information, along with opinions about school programs. This presentation also examines how the research provided an opportunity to apply techniques and methods of quantitative research learned in the basic Research Methods course in sociology. As a result of this project each member of the student group felt more competent in their understanding of research methods and their applications within professional and academic settings.

179. Adjustments Following Addition: Advisors' Actions Regarding MCAT® Revisions
Marta Selby, John Semlitsch, Forrest Stanley-Stevens, Sociology and Anthropology Department
Sponsor: Dr. Edward Kain

This study serves to examine the steps premedical or pre-health advisors around the nation have taken in response to the recent changes in the Medical College Admissions Test®. This study provides insight into how advisors are adapting to the new "Psychological, Social, and Biological Foundations of Behavior" section in the MCAT2015®, and how they have communicated with the sociology departments, psychology departments, and the administration to compose a better suited curriculum for pre-medical students. To measure the reactions taken in response, we created an online survey assessing the advisors' knowledge of the MCAT® changes, the actions they have taken on campus, and the actions they plan to take. For our sample, we selected a top National University, Regional University, National Liberal Arts College, and Regional (Liberal Arts) College from each state, and used the public email provided on the institution's website to contact the premedical or pre-health advisor. We had thirty-eight completed responses out of the one hundred twenty-eight emails sent. The results show that the majority of advisors have heard about the changes in the MCAT® and have implemented communication on campus. Developing constructive discussion about the changes with the institution's administration, sociology department, and psychology department created a better system to deal with the influx of premed students, and clarified the requirements for the students. Advisors need to clearly communicate the importance of taking the newly required courses, as well as application of the concepts in the medical community.

180. Preparing for Changes in the MCAT© Exam: Opportunities and Challenges for Sociology Programs
Lucas Grisham, Kelsey Kisor, Mitchell Petersen, Sociology and Anthropology Department,
Sponsor: Dr. Edward Kain

This research examines the changes being made to the 2015 MCAT© to include a section that focuses primarily upon material from the social sciences. Specifically, this research explores what sociology departments know about these changes and what they are doing to prepare for these changes including exploring whether or not departments have any "best practices" that they are using to prepare for the new version of the exam. An internet survey with ten items

was sent to a national sample of sociology department chairs at national universities, regional universities, national liberal arts colleges, and regional liberal arts colleges. The findings suggest that universities and colleges that know and have used resources from the Association of American Medical Colleges have higher rates of preparedness for the changes in the exam. In addition, many institutions have known about the changes for a while, but few have any set “best practices” to put in place. Examples from departments that have developed successful best practices may be found useful for those involved in curricular changes in preparation for the new exam.

181. "It's a Man's Man's Sport:" Masculinity and Coming Out in American Football
Nathan Tuttle, Sociology and Anthropology Department
Sponsor: Dr. Maria Lowe

The current research explores the evolving relationship between homophobia, masculinity, and American football culture at the elite level. I use R.W. Connell’s theory of hegemonic masculinity and Joan Acker’s theory of gendered organizations in order to help explain the factors of the elite football culture that silence gay football players and vocally supportive straight allies. To collect data for this paper I conducted confidential telephone interviews with current and former National Football League (NFL) players, National Collegiate Athletic Association (NCAA) Division I football players, and sports journalists from August to December 2013. I also analyzed the organizational materials and history of both the NFL and the NCAA. I find that, from the players’ perspective, hegemonic masculinity is institutionalized in football by the financial power of teams and owners, as well as homophobic discourse used by coaches. Players report that by seeking out and glorifying an ideal worker that is hyper-masculine and sometimes homophobic, teams are creating a culture that is harmful to both gay and straight athletes alike. These findings shed light on the complex nature of football culture and the ways that hegemonic masculinity can be countered in one of its most powerful strongholds.

182. Blooming Imperfection: Exploring the Ecuadorian Rose Floriculture
Sarah Puffer, Sociology and Anthropology Department
Sponsor: Dr. Brenda Sendejo

The aim of this paper is to explain how Ecuadorian floriculture funds a livelihood for members of the formal and alternative economies. The formal economy refers to roses and workers on large, monoculture plantations where the roses are exported. The alternative economy refers to all those roses which are not deemed worthy for export and are instead channeled into the national, Ecuadorian market. I will explore the dynamics between the formal rose floriculture on the farms and the alternative economies – such as that of the La Rosa Nacional -- of local florists in Quito, Ecuador. Data drawn from my study abroad program during the spring of 2013 shows how the alternative economy becomes the life source for an entire population base that work selling and transporting La Rosa Nacional. In Quito. As Rosa, a florist in the flower section of an open market, told me in when speaking about her relationship to the rose and its significance in her life "Tengo que tratarlas con mucho cariño porque viva de ellas" ("I have to treat them with much care because I live off them"). Both the farm worker and Ecuadorian florist care for the roses, yet their connection to the flower is strikingly different.

183. (Re)Making Self: Gender Identity Formation by FTM Transgenderists in Amsterdam
Lauren Saylor, Sociology and Anthropology Department
Sponsor: Dr. Brenda Sendejo

In *Creativity - Flow and the Psychology of Discovery and Invention*, Mihaly Csikszentmihalyi defines creativity as "any act, idea, or product that changes an existing domain, or that transforms an existing domain into a new one..." Drawing on research conducted in Amsterdam, the Netherlands, this research attempts to answer the question of how female-to-male transgenderists become cognizant of their gender identity and the ensuing creative processes of identity formation and development throughout their lifetimes. Data includes oral history interviews with transgenderists who identified somewhere on the male end of the gender spectrum. This paper discusses the language critical to understanding contemporary issues and literature, and then draws on gender theorists in order to further analyze the oral histories collected. Judith Butler and Judith Halberstam's works guide this research's understanding of alternative masculinities and gender performativity. Clifford Geertz's ideas on 'the stories we tell ourselves about ourselves' further inform the analysis of the ethnographic data. Findings indicate that respondents' self-perception and gender identity formation are more imperative to their own maturation of selfhood than perceptions of themselves by others, or the ability to "pass" for cis-gendered men. Research also indicates that gender performance is learned in the same embodied ways for transgenderists as for heterosexual, gender binary people. The hope is that this research will contribute to the demedicalization of trans* bodies within academic and scholarly literature and help to fill the gap on research with FTM transgenderists.

184. Coloring the Ivory Tower: A Critical Race Analysis of Latino/a Graduate Student Experiences
Susana Contreras, Sociology and Anthropology Department
Sponsor: Dr. Brenda Sendejo

Although Latino/a youths have narrowed the gap in college enrollment and already comprise 24.5% of all elementary school students and 16.5% of students enrolled in college, Latino/as students are the least educated major racial or ethnic group as measured by completion of a bachelor's degree. With very few institutional built-in peer groups (e.g. first-generation Latino/a professors), the personal and academic hurdles first-generation Latino undergraduates are faced with are myriad. By shifting the focus to graduate students of color, research can begin to support a pool of potential aspirational capital and social capital for Latino/a undergraduates. Using Critical Race and Anzaldúan Theories as a framework, I conducted research focused on first-generation, Latino/a graduate students from March through July of 2013. In navigating through graduate school Latino/a students engaged in claiming of space to assert resistance, self-imposed censorship, and a search for community outside of their graduate program. that can serve the growing population of Latino/a students.

185. Mercury: Making People Mad Since 210 BC
Carly Cooper, Sociology and Anthropology Department
Sponsor: Dr. Brenda Sendejo

Mercury's environmental impact, toxicology, basic science, public policy, and health implications are some of the least studied and perhaps greatest potential threats to humanity's long-term health. Sadly, 3,500 years after recognizing the toxicity of mercury and its compounds -- and millions of lost and destroyed lives later -- there still exists social ignorance toward this highly toxic metal. This paper draws from my research on the history of mercury poisoning and its modern exposure mediums. Specifically, this presentation explores the effects of mercury

poisoning on the lives of those suffering from it and their families. Over the course of the last ten years my family and I have developed a complex understanding of this toxic illness. Data is drawn from auto-ethnography and oral history interviews dealing with my father's case of mercury poisoning, as well as data from in-depth interviews with my family members and father's doctors. Poisoning from toxins such as heavy metals -- whether inhaled, consumed through food, or a result of occupational exposure -- is a violation of our human and environmental rights as global citizens. This presentation will illustrate through an anthropological lens what mercury poisoning truly is and envision a better way to perceive this misunderstood illness.

186. Perceptions of Alcoholism in the Indigenous Andean towns of Peru
Bailey Hayes, Sociology and Anthropology Department
Sponsor: Dr. Brenda Sendejo

Alcohol and its use has existed in Andean culture long before colonization and the white man's presence. The consumption of alcohol plays a major role in ceremonies, ancient rituals, as well as social interactions in the indigenous societies of Peru. In the past few decades, the use of alcohol has increased and alcoholism has taken a new and dangerous form in these communities. Indigenous towns are working to defeat the negative stereotypes surrounding their communities, yet so many of these perceptions are perpetuated by the stereotype of the "drunken Indian" that can be seen in various countries around the world. Because alcoholism in the indigenous communities differs so much from alcoholism in urban cities of Peru, it is difficult to understand and resolve from the outside looking in. Using the ethnographic methods of participant observation and in-depth interviewing, I have explored various aspects surrounding alcoholism in two indigenous communities in the Andean region of Urcos, Peru. In this presentation, I will discuss and analyze the social perceptions and implications of alcoholism in the indigenous communities of Urcos, Peru, while focusing on the "drunken Indian" stereotype, urban alcoholism versus indigenous alcoholism, and traditional indigenous methods for resolving alcoholism in a community.

187. Through the Looking Glass: Facebook Reflects IOS in Romantic Relationships
Araceli Castañeda, Markie Wendel, Psychology Department
Sponsor: Dr. Erin Crockett

Because Social Networking Sites (SNSs) are becoming so commonplace, relationship researchers have argued that it is important to revalidate established theories using SNSs (Anderson, Fagan, Woodnutt, & Chamorro-Premuzic, 2012). Given that past research has found SNSs to be extensions of individuals' personalities and behaviors (Back et al., 2010; Gosling et al., 2011), there is reason to believe that interpersonal relationships would also translate to SNSs. Of particular interest to the present study was whether there was an association between self-reported level of Inclusion of Other in the Self (IOS) and Facebook overlap. We were also interested in whether Investment Model constructs associated with self-reported IOS would be associated with Facebook overlap. A sample of 94 individuals (46 women, 48 men; 47 couples) ranging in age from 18 to 39 ($M = 23.08$) were asked to complete a 15 min online survey that assessed IOS and Investment Model constructs. Participants then sent a friend request to the research team's Facebook profile. Multilevel modeling was used to analyze the data. Consistent with our hypothesis, the degree of self-reported IOS was positively associated with Facebook overlap. That is, individuals who reported higher levels of IOS also shared more overlap with their partners' Facebook profile. Further, Facebook overlap was associated with Investment Model constructs in similar ways to self-reported IOS. These findings support the idea that individuals use SNSs to portray themselves and their relationships accurately. Ultimately, the

current results highlight a need for further research on Facebook overlap and relationship outcomes.

188. Does Diversity Education Decrease Prejudice Against Disabled People?
Jordan Curtis, Meredith Horning, Bryony McLaughlin, Sara Infante, Psychology Department
Sponsor: Dr. Cari Goetz

Multicultural education has done a good job looking at issues of racial diversity, but a lack of perspective exists on disability issues which may cause certain undesirable effects on inclusion in school. There is support for cooperation as a means by which to reduce prejudice, but revealing the struggles of the disabled community has yet to be tested as a way of reducing prejudice. In the study which hypothesized that exposure to diversity education focusing on accessibility issues will decrease prejudice 51 participants were tested from a small liberal arts university in the southwestern United States by exposing 27 to experimenter created diversity education material focusing on accessibility and 24 to a study abroad brochure control group. Participants then completed selected questions from the social dominance orientation scale (Prato et. al., 1994). It was found that there was a significant difference in the mean difference between groups showing that exposure to diversity education lowered scores on the social dominance orientation scale thus indicating less prejudice. These results were consistent with the little research already existing on the topic of education about disability while expanding the knowledge to include not only cooperation but also enlightenment of struggle. This information may be used for continuing diversity education initiatives and further research could be used to see what effect this will have on participants actions as well as what caused their change.

189. Keeping Austin Gendered: Male Hegemony in Austin's Live Music Scene
Keeley Hooker, Sociology and Anthropology Department
Sponsor: Dr. Brenda Sendejo

Since 1991, Austin, Texas has been labeled the “live music capital of the world.” This was attributed to the city having more square footage of live music venues per capita than any other place in the country. As my research has shown, however, most of this square footage remains occupied by male presence. This has resulted in a gendered construct of space that allows for a hegemonic male structure within live music audiences. In my paper I apply a feminist framework to the theoretical concept of habitus to explore gender performativity among female and male audience members and how the Austin live music scene in particular shapes and facilitates this gender performativity. Using participant observation and interviews conducted for my Anthropology capstone project, my research focuses on how female participants are constantly reminded of their gender in these heightened masculine spaces and how male hegemony influences “acceptable” female behavior and empowerment through resistance. This includes female acts of resistance like countering unwanted advances from males with certain body language like the “fuck off” look, and claiming their space by performing male activities like moshing, in male dominated concerts.

190. Navigating Cancer: Oral Histories of Breast Cancer Navigators Near Austin, Texas
Allie Klein, Sociology and Anthropology Department
Sponsor: Dr. Brenda Sendejo

In this paper I explore the role of breast cancer patient Navigators as a creative response to the medical field’s decreased focus on personal interaction and increased attention towards technological advances and efficiency. Drawing on oral histories conducted with breast cancer

patient navigators in Austin, Texas, I argue that these women are an important component of the health care system. This is particularly relevant in that breast cancer has become increasingly prevalent, affecting more than one in eight women in America. Breast cancer survivors themselves, navigators assist patients in seeking out recourses that aid in their healing. They help clients communicate with doctors by helping them articulate questions and teaching clients how read their pathology reports. They also help clients to obtain health insurance and navigate the network of Austin's non-profits that provide transportation to treatment and childcare services. As breast cancer survivors, Navigators understand their client's burden and fear better than any other medical professional. Their personal familiarity with breast cancer, as well as experiences with family members having cancer, have prepared them to help their clients be successful in their healing. Unlike many outcomes of the medical field, the impact of Navigators can only be understood qualitatively, through their stories. This ethnography bridges this disjunction, bringing qualitative methods of ethnography and storytelling into the medical field to show how Navigators make vast improvements in their clients' health care by helping patients overcome financial, communicative, and psychological barriers in their fight against breast cancer.

191. The Role of Social Workers in Improving Health Care Disparities in Austin, TX
C.J. Martinez, Sociology and Anthropology Department
Sponsor: Dr. Brenda Sendejo

The U.S. government is currently pushing to reform health care industry in ways that it believes will reduce care disparities, focusing primarily on issues of poverty and inequality. However, one factor fueling care disparity is often overlooked by those trying to make care more widely accessible: stigma. Health professionals are concerned that new changes will threaten the trust and confidentiality of their relationships with patients; but unfortunately many have overlooked an important barrier to improving provider-patient interaction: stigma. HIV/AIDS exemplifies how stigma can deter improving care accessibility and patient-provider interaction. Many at HIV-risk put off seeking a formal health professional, instead visiting a local health social worker whom they perceive to be more in touch with their daily experiences. Drawing on data gathered via participant observation at an HIV prevention agency in East Austin and interviews with social workers, this paper explores the vital role of social workers in improving health care disparities in local communities. Because clients may be stigmatized because of potential HIV+ status, social workers at this agency practice a low threshold, non-judgmental approach to client interaction, whether clients are at risk because of drug use or sexual activity. Much can be learned from the approach that these social workers take while interacting with their clients. Tackling stigma-related issues would aid legislators to see that issues such as stigma must be considered when solving health disparities, and help physicians and nurses to strengthen the integrity of the revered doctor-patient relationship, and thus the art of healing.

192. Buildings That Build A Community: Living Learning Communities at Southwestern University
Adrienne McClendon, Sociology and Anthropology Department
Sponsor: Dr. Brenda Sendejo

Living Learning Communities (LLCs) have been a popular trend in the past two decades in higher education as universities look for ways to improve the first year experience and increase retention rates. LLCs have been widely successful in that participating students maintain higher grades, engage in more campus activities, develop better relationships with faculty, boast greater satisfaction with their college experience and have higher return rates. Southwestern University incorporated LLCs into their first-year seminar program in 2005 in pursuit of the

forementioned goals and achieved great results. This makes the LLCs a popular housing option for first-years. This project originally began as a Resident Assistant of a single gender residence hall using her anthropology skills to understand the world across the courtyard, the coed Living Learning Communities of Kurth. It has since expanded to include another LLC residence hall, Brown-Cody. The presentation will focus on the current residents of Brown-Cody, using my personal experiences in Brown-Cody as a resident and RA when it was single gender housing, and previous data from Kurth's LLCs to support the most recent data. I collected data through observation and interviews with residents and Resident Assistants that indicated that the architecture of the building plays its own role in the development of communities. As the University grows and the need for more rooms increases, the potentials of the current residence communities must be understood in order to maximize the positive potential of new facilities.

193. Fielding Gender: Gender Performance and Identity in Women's Softball at Southwestern University
Karen Ramirez, Sociology and Anthropology Department
Sponsor: Dr. Brenda Sendejo

Although it is typically seen as a women's sport, softball is also stereotyped by many as being "unfeminine" because it derived from the men's sport of baseball and players don similar clothing styles and equipment. The ball used is called a softball, but the ball and the game are anything but soft. Diving and sliding in the dirt are both part of the game, rough aspects of the sport usually only attributed to men's sports. My purpose in writing this autoethnography is to understand how gender is performed by me and my teammates, all members of the Southwestern University varsity softball team. This research seeks to know how we as softball players reproduce or resist gender stereotypes within softball and how gender roles and expectations have affected the notions of how we view our own identity. Drawing on data collected through formal interviews, informal interviews, participant observation, and self-reflection I will discuss how the manner in which we perform gender while playing on the field contradicts with the way we describe ourselves during interviews. While we "over feminize" ourselves on the field by using large bows, wearing make-up, and braiding our hair, once off the playing field setting we describe ourselves as acknowledging the stereotypes that surround the sport of softball, but not caring about them and even resisting them.

194. From Scientific Understanding to Effective Policy: Fruits and Vegetables Consumption and Cancer Incidence
José Bayoán Santiago Calderón, Economics and Business Department
Sponsor: Dr. Dirk Early

This paper examines the way scientific understanding becomes policy in the context of the effects of fruits and vegetables consumption on cancer incidence. It has been a common practice to recommend the consumption of fruits and vegetables as part of a healthy diet and to promote wellness. It has also been recommended as a way to prevent many health conditions such as overweight, coronary heart diseases, and cancer. However, the empirical evidence of any association between the fruits and vegetable and cancer has been limited. This presentation describes longitudinal study using time delayed data from the Behavioral Risk Factor Surveillance System (BRFSS) and the Surveillance, Epidemiology, and End Results Program (SEER) for the last decade. The results were consistent with the current literature showing no significant inverse correlation between fruits and vegetables consumption and cancer incidence. We concluded that the current policy and recommendations are incorrectly extrapolated from the underlying scientific understand and cannot predict or be used as tools to achieve the

desired effect under the established context. Lastly, we analyze how to improve these dynamics to address the issues and establish better recommendations and policies.

195. Women in Business: An Analysis of Businesses with Women Executives
Kristen Heg, Economics and Business Department
Sponsor: Dr. Dirk Early

Of Standard and Poor's 500 largest companies in America, women are CEO's of only 23. There are still many stereotypes that plague women in the workplace from not being as efficient or smart, to not being as effective because of motherhood. Studies have attributed the lack of women executives to their tendency to be more risk averse and conservative, but that generalization does not fully account for the fact that women are earning 57% of bachelor's degrees, but are only chief executives at 4% of S&P 500 companies, only 16% of the directors at Fortune 500 companies, and only manage 3% of hedge funds. Given these contrasting figures, I am looking into how S&P 500 companies actually perform when women are their chief executives. Using time series data of 5 years in SPSS, I will compare the 23 companies run by women in S&P's 500 to the 477 companies run by men. In order to compare them I will be comparing their ROA, which is return on assets, which according to investopedia is an indicator of how profitable a company is relative to its total assets, and it "gives an idea as to how efficient management is at using its assets to generate earnings." In order to keep bias minimal, I will be accounting for size of the company, how the industry performed that year, age of the CEO, and experience of the CEO.

196. Voter Identification Laws and Future Implications
Abigail Dunn, Economics and Business Department
Sponsor: Dr. Dirk Early

The issue of voter identification laws is one that is of increasing interest as many states have recently passed or are trying to pass more restrictive voter laws. The impact of these laws on voter turnout is of extreme concern. Laws that prevent certain members from voting are harmful to our political system. The main reason claimed for needing these laws is voter fraud. While voter fraud is a serious concern there is little evidence of voter fraud actually being committed. This is the main issue in determining a cost benefit analysis of these more restrictive laws as it is hard to put a quantifiable number on the impact they have and it is hard to put a number on how detrimental voter fraud actually is. The research questions involve discovering if these more restrictive voter identification laws are discriminatory, and if so who they impact the most. I want to know: Do stricter voter identification laws reduce overall voter turnout and which of these restrictive laws have the more impact on turnout? This research will suggest how the implementation of these laws will affect our political future and see if there is a way to have these stricter voter laws and still make sure that everyone's rights are protected.

197. Sacrificing Texas: Giving Up Health, Income, and Environment for Potential Growth
Shelby Gebhart, Economics and Business Department
Sponsor: Dr. Dirk Early

Economic "sacrifice zones" are communities in which outside firms, acting as profit maximizers, exploit the area for natural resources to the detriment of the people who live there. Under a capitalist system, it is rational behavior for firms to commoditize these communities, treating them as minor costs to the firm's increasing growth. This project includes an economic and

spatial analysis of Texas sacrifice zones, and the impacts that they have on the affected community's quality of life, based on health, income, and environmental factors.

198. The Impact of IMF Policy and the Expectation of High Returns from Developing Nations when in Economic Crisis
Adrian Gomez, Economics and Business Department
Sponsor: Dr. Dirk Early

All nations were in some manner affected negatively by the 2008 financial crisis. However, nations such as Greece, Iceland, and others in similar financial situations are far worse off than economic power-houses such as the United States. The International Monetary Fund (IMF) using a variety of tools attempts to help nations that are on the brink of economic failure, like those that were previously listed. Though the bureaucracy means well and attempts to help the international community when in need; there are some criticisms and concerns over the manner in which the organization plans and executes its aid. Previous literature shares concerns over the fact that the IMF itself is funded by the economic power houses such as, the United States and Germany. Also the fact that it is a bureaucracy it needs consistent funding in order to have its doors open. This study using empirical analysis will attempt to understand the effects of implementing IMF policy at the economic level. Do these tools and loans implemented by the IMF benefit the country receiving the aid? Are there actual economic gains from receiving aid from the IMF? Or do the philosophies embraced by the bureaucracy simply create a consistent source of cash flow?

199. Does Playing College Basketball Affect an NBA Career?
Brianna Guevara, Economics and Business Department
Sponsor: Dr. Dirk Early

As of 2013, the NBA has grown into a \$19 billion dollar industry. As the industry continues to grow, so does the importance of selecting players to be in the league. In the United States, college basketball programs are often used as the transitional stop between high school and the NBA. This research attempts to measure the impact of college basketball experience on a player's NBA success. In 2006 the NBA implemented a new rule that said a player was not eligible to be drafted until they were at least 19 years of age and 1 year removed from high school graduation. This study looks to capture the effect of this new rule by looking at the top 25 draft picks from the years 2003-2008 to determine if the number of years playing college basketball influenced their development. Variables on a player's college career, NBA draft position, and experience in the first several years of his career will be used as explanatory variables in a regression explaining a player's efficiency rating in his 5th year in the NBA. The results will provide an estimate of the benefit of finishing an extra year of college on a player's efficiency. It can also lend insight to teams when determining what type of players they should look to draft.

200. Unbanked Hispanics
Isidoro Ramirez, Economics and Business Department
Sponsor: Dr. Dirk Early

According to the 2011 FDIC's National Survey of Unbanked and Underbanked Households, approximately 20.1% of Hispanics households are unbanked, i.e. they do not have a savings or a checking account. Unbanked households have less economic mobility because they do not participate in the financial system; these households lack credit, credit history, and the resources to finance investments. By having a bank account, a household can obtain credit to

purchase a house, finance their education, or save for retirement. This paper will answer the following question: does the level of education and ethnicity influence a household's decision to become banked or unbanked? In particular, the paper focuses on what variables influence Hispanics to engage with the financial system. The paper uses data from the 2012 Panel Study of Income Dynamics. The dependent variable is whether a household is unbanked. The independent variables are years of education, race, ethnicity, age, income, the number of weeks a household is unemployed, whether a household rents or owns a house, and household size. A linear probability model was used to test which independent variable had the greatest effect on being unbanked. The results suggest the probability of being unbanked declines as a household's education rises, and that the probability of being banked increases with income, but at a decreasing rate. The results further suggest that education plays a key role in reducing a household's probability of becoming unbanked.

201. Exploring the Relationship Between Economic Freedom, Growth, and Income Inequality
Alex Michael, Economics and Business Department
Sponsor: Dr. Dirk Early

This paper explores the relationship between a nation's level of economic freedom (using the Fraser Institute Economic Freedom of the World Index) and its levels of GDP growth and income inequality from 1985 to 2010. A number of economists have hypothesized relationships between both economic freedom and growth and economic freedom and inequality, but few papers have examined the interaction of all three variables. Using both growth and income inequality as outcome variables, I find that economic freedom has both a statistically and economically significant relationship with growth but not inequality.

202. Medicaid Participation Among Legal U.S. Immigrants
Leslie Ann Ramey, Economics and Business Department
Sponsor: Dr. Dirk Early

While many Americans believe immigration is beneficial for the United States, immigration continues to be a sensitive subject due to concerns about immigrants' use of government programs and their fiscal impact. One of the most costly social welfare programs available to immigrants is Medicaid, however many eligible immigrants do not take advantage of this program. This study will explore the factors that influence legal immigrants in their decision to take up Medicaid. In this cross-sectional study, a logistic regression is employed to identify variables associated with legal immigrant participation in Medicaid using microdata from Princeton's 2003 New Immigrant Survey. The results of this study could potentially support the main theories about low levels of participation in healthcare programs among immigrants. This research is relevant not only because of the ongoing debate on U.S. immigration policy, but also because there is little empirical work on immigrants currently living in the United States. The goal of this study is to improve our understanding of the current immigrant experience and inform future immigration and welfare policies.

203. The Benefits of Bilingualism
Brooke Chatterton, Economics and Business Department
Sponsor: Dr. Dirk Early

Since 1980, the landscape of languages spoken in the United States has varied dramatically. In 2007, 34.5 million people in the U.S. spoke Spanish, and the number of people who spoke Spanish at home has increased over 210% since 1980, during a time period when the United States population has only grown 34%. Over 20% of those that spoke Spanish at home spoke English “not well” or “not at all.” It follows that the human capital embodied in bilingualism and multilingualism would become more valuable to employees so that they can communicate with their customer base. Texas, a state with one of the highest proportions of Spanish spoken in the United States, presents an interesting case study to the value of Spanish-English bilingualism. This work examines data sourced from the 2007-2011 ACS PUMS 5% sample utilizing OLS regression analysis to determine if a wage premium exists for Spanish-English bilingual workers in Texas. Separate regressions were run focusing on occupations that the literature on the subject suggested would be the most likely to exhibit a wage premium, namely medical and health services and sales. The results suggest a slight but insignificant wage penalty to bilingualism in those selected industries. Increases in the number of weeks worked, the number of hours worked, and the level of education attained significantly and positively affect income. The returns to education were the highest in the medical and health services sector.

204. The Effects of Recession and Individual Characteristics on Alumni Contributions
Robert Rios, Economics and Business Department
Sponsor: Dr. Dirk Early

Alumni donations historically comprise a large portion of the financial support to educational institutions. In 2005, alumni contributions represented 26.6 percent of all university donations (Gottfried and Johnson 2006). Since then, alumni contributions have continued to grow. Interestingly, however, while the percentage of alumni contributions has grown, the number of alumni who participate in donative behavior has declined (McDearmon and Shirley 2009). The decline in donative behavior has stimulated research to determine the individual characteristics and economic conditions that reflect the highest levels of giving. Using data provided by the Office of University Relations-Gifts at Southwestern University, this study utilizes OLS regression techniques to identify which individual characteristics—gender, academic major, Greek-life participation, Homecoming attendance, and residence—drive alumni participation in donative behavior and the dollar value of contributions. By comparing the coefficients on individual characteristics for the classes of 2000, 2004, 2008, and 2012, another goal of this study is to assess the impact of the 2008 recession on alumni contributions at Southwestern University. While the results of this study may not be representative of all universities, the results and methodologies used offer valuable information for institutions seeking to better understand the giving behavior of their alumni.

205. Gun Control: an Econometric Approach
Allison Stubbs, Economics and Business Department
Sponsor: Dr. Dirk Early

Like many other examples of controversy in America, gun control laws have a broad spectrum of data to support two polarized stances. Depending on preexisting variables such as crime rates, drug usage, income, unemployment, and other population statistics, which outcome of gun control laws is most likely to dominate in certain areas? Is it more likely that gun-specific crime

will increase due to heightened availability of guns, or will violent crime decrease due to overall awareness of guns available for protection? Furthermore, what “other factor” is a key proponent behind which outcome of crime change is observed?

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