

Fine Arts   Humanities   Natural Sciences   Social Sciences

# Student Works Symposium

Southwestern University  
Georgetown, Texas

April 9, 2013



# **2013 STUDENT WORKS SYMPOSIUM FROM EVERY VOICE**

Southwestern University  
Georgetown, Texas

EVENT PLANNER  
Christine C. Vasquez  
Office of the Provost  
Southwestern University

STUDENT PROGRAM CHAIR  
Victoria DeLeon, Biology Major  
Class of 2013  
Southwestern University

**Special Thanks To:**  
Office of the Provost  
Paideia Program

April 9, 2013

Dear Members of the Southwestern University and Georgetown Communities:

Welcome to Southwestern University's fourteenth annual Student Works Symposium – From Every Voice! As one of the unique features of Southwestern University, the Symposium provides students with the opportunity to present their research and creative works. The Symposium encourages students to experience other disciplines - all in harmony with the attitude of a liberal arts education. In addition, the Symposium unites Southwestern University with the Georgetown community. A single voice can spark inspiration, conversation, and give rise to new perspectives.

This year the Symposium will showcase 96 presentations from 126 students. A special thank you to the faculty sponsors, we are grateful to you for your work with students and support of their presentations at this Symposium. We also greatly appreciate your attendance and hope you enjoy the Symposium. Students have put forth their greatest efforts to make this Symposium an educational experience to promote the exchange of scholarly information.

Sincerely,

Victoria DeLeon

Class of 2013

Student Program Chair

Student Works Symposium – From Every Voice

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# SYMPOSIUM SCHEDULE AT A GLANCE

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- 11:00-3:00 Registration for Presenters in Bishops Lounge
- 5:00-6:00 Oral Presentations in the Red and Charline McCombs Campus Center Ballrooms, Roy B. Shilling, Jr. Room, Margaret Shilling Room, and the Merzbach Room
- 6:00 1. Musical Dialogue Performance in Bishops Lounge  
William Danheim, Jeffrey McKenzie, Marie Smith, Erin Weber
- 6:15 Introductory Remarks: Victoria DeLeon, Student Program Chair  
Welcoming Remarks: Jim Hunt, Provost and Dean of the Faculty  
in Bishops Lounge
2. Rescued by Rover Performance in Bishops Lounge  
William Danheim, Jenna Gaska, Stacie Glowka, Jeffrey McKenzie,  
Erin Weber
- 6:30 Creative Works and Exhibitions in the Sarofim School of Fine Arts  
Senior Art Exhibitions  
Advanced Painting Exhibition  
Jim and Pat Walzel Lobby, *Refreshments Serve*
6. Composition for the Guitar: The Instrument's Influence on the Practice of  
Music Theory Performance in Bishops Lounge  
Sean Stone-Ashe
- 7:00-8:00 Poster Presentations, Creative Works and Exhibitions in the Bishops Lounge,  
*Refreshments Served*
- 8:00-9:00 Continuation of Oral Presentations in the Red and Charline McCombs Campus  
Center Ballrooms, Roy B. Shilling, Jr. Room, Margaret Shilling Room, and the  
Merzbach Room

# PROGRAM AGENDA

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## *CREATIVE WORKS AND EXHIBITIONS*

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### ***Bishops Lounge***

- 6:00 1. Musical Dialogue Performance  
William Danheim, Jeffrey McKenzie, Marie Smith, Erin Weber
- 6:15 2. Rescued by Rover Performance  
William Danheim, Jenna Gaska, Stacie Glowka, Jeffrey McKenzie,  
Erin Weber
- 6:30 6. Composition for the Guitar: The Instrument's Influence on the Practice of  
Music Theory  
Sean Stone-Ashe
- 7:00 3. Nuclear Fusion Reactor  
Vicente Estrada-Carpenter, Robert Lehr
4. Sculpting with Sand  
Ellen Hinds
5. Bubble Display  
Eric Oden

### ***Sarofim School of Fine Arts***

- 7:00 7. Junior Painting Exhibit  
*In This Head of Mine*, oil on canvas, 54" x 40", 2012  
Carmen Gadt
8. Junior Painting Exhibit  
*Insignificant, Incapable, Insecure, Timid, Dull*, acrylic on panel, 8.75" x 28",  
2012  
Jamie Gardner
9. Junior Painting Exhibit  
*Outfits*, oil on Panel, 54" x 37.5", 2013  
Nikki Grona
10. Junior Painting Exhibit  
*0, 1, 1, 2, 3, 5, 8, 13...*, oil on canvas, 32" x 32", 2012  
Sarah Loraine Kinney
11. Junior Painting Exhibit  
*Cavernous*, oil on canvas, 72" x 48", 2012  
Candace Weigand
12. Senior Art Exhibit  
*Prokaryotes*, oil on canvas, 72" x 84", 2013  
Jessica Cox
13. Senior Art Exhibit  
*Weather Patterns: 1960*, enamel paint on ceramic tile, 24" x 53", 2012  
Kim Dembrosky
14. Senior Art Exhibit  
*Memories-A-Slippin'*, on oil on canvas, 42" x 24", 2012  
Rebecca Gordon

## ***POSTER PRESENTATIONS***

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### ***Bishops Lounge***

- 7:00
15. Epithelial to Mesenchymal Transition in Breast Cancer Cells  
Noah Bierwirth, Busola Okunnu
  16. Potential Use of Natural Melanophore Patterns for Recognition of Individual Georgetown Salamanders (Eurycea Naufregia)  
Jenifer Harren, Alexandria Hill
  17. Pirate Operations Management Simulator: On Deck!  
Addison Dean, Erick Bauman, Alexander Heath
  18. Pirate Operating Management System: Below Deck  
Kayla Saenger, Ryan Saurage, Ryan Washburn, Jefferson Ellinger, Jason Catron, Taylor Elkins
  19. The Land of Good Water: A Native History of Georgetown, Texas  
Shelby Gebhart
  20. An Air of Collaboration  
Devin Corbitt
  21. The Undergraduate as Administrator  
Andrea Gannon
  22. Catch-22  
Andrew Reynolds
  23. Indescribable... Indestructible! Nothing Can Stop It! Desertification vs. Global Average Temperature Increase  
Ivan Cruickshank
  24. Organic Food Miles: Does Going Organic Mean a Smaller Carbon Footprint?  
Steve DeGrand
  25. A Land Called Home: A Visualization of the Migration of Native American Tribes in the U.S.  
Jessica Enyioha
  26. Raising the Roof: Mapping the Solar Thermal, Reflective, and Green Rooftop Potential in Reducing the Overall Carbon Footprint of Southwestern University Campus  
Benjamin Galindo
  27. Why Are Students Tardy? A Spatial Analysis of the Factors Leading to Tardies  
Dakota McDurham
  28. Where's the Water? Mapping Water Vulnerability in Sub-Saharan Africa  
Jennifer O'Neal
  29. Green or Green-Washed? Mapping Sustainability Rankings in Austin, Texas  
Grady Sampley, Elizabeth Funk
  30. Caffeine Crazed! The Effect of Starbucks on the Distribution of Coffee Shops in the Greater Austin Area  
Ashley Scott



31. Biomechanical and Statistical Effects of Changing the Three-Point Line in Division III Women's Basketball  
Katelyn Bartell
32. The Effect of Cardiovascular Drift on the Efficacy of Exercise Prescription  
Katherine Foster
33. The Effects of Heading on Neurocognitive Function in Female Collegiate Soccer Players During an Entire Soccer Season  
Sarah Nonaka
34. The Acute Effects of Hatha Yoga on Psychological and Physiological Measures Associated with Stress  
Lyndsey Resnik
35. Creation of a Thermoacoustic Generator  
Karl Kleinsasser, Caroline Weston
36. Improved Lead-Acid Charge Efficiency by Use of a DC to DC Buck-Boost Voltage Regulator in Stand-Alone Photovoltaic Systems  
Jean Pierre Murenzi
37. Training Attention to Enhance Suppression  
Thomas Bobbitt
38. Examining the Effects of Gender and Sexual Orientation on Preferences for Gynecologists  
Sarah Dorer, Samantha Sada
39. Perceptions of Dating in Adolescence and Self-Esteem in Emerging Adulthood  
Sara Goodman
40. Opposites Don't Always Attract: The Matching Hypothesis and Openness in Romantic Relationships  
Anna Hartmann, Annelise Carlin
41. Three's a Crowd... Or is it? Examining Public Perceptions of Polyamory  
Kevin Hutzler, Jordan Herselman, Sarah Johnson
42. Development of a Concise Measure of Attitudes Toward Polyamory  
Sarah Johnson, Jordan Herselman, Kevin Hutzler
43. The Problem With Happily Ever After: Fate-Based Relationships; Neuroticism, and Infidelity  
Michelle Cincunegui Legator
44. To Take or Not To Take: The Effect of Target Religion and Action Taken on Perceived Morality  
Kaser Polk, Stephanie Valle
45. Gays of Our Lives: Attitudes Toward Gay Instructors in Gender Stereotypical Activities  
Erika Sells, Kara Schapiro
46. Avoidant Attachment and Neuroticism as a Predictor of Romantic Relationship Frequency  
Rachel Terry, Aimee Blake, Jessica Parada
47. Extraversion as a Predictor in Mentor-Mentee Relationships  
Estrella Thomas, Elizabeth Anne Stankus
48. Effects of Equine Assisted Activities and Therapies on Participation and Sleep Among Children with Disabilities  
Stephanie Valle, Sarah McCausland, Vikram Manoranjan, Hillary McDonald

## ORAL PRESENTATIONS

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### *Lynda McCombs Ballroom*

- 5:00 49. Somebody to Come Home To: Navigating the Human/Non-Human Boundary  
Marianne Lynch
- 5:15 50. Beyond Spirit Stories  
Janice Contreras
- 5:30 51. Forging New Identities: Performance as Conflict Resolution in  
Northern Ireland  
Carlie Sulpizio
- 5:45 52. Fear is Contagious: The Impact of the Violence in Juarez, Mexico on  
El Paso Residents  
Victoria Phillips
- 8:00 53. Dis-Embodying Knowledge: The Impact of Western Medical Discourse on  
Female Bedu Healers in Jordan  
Chloe Morris
- 8:15 54. Fitting into the Ideals of "New India" after Breast Cancer: Survivor Stories  
from Mumbai, India  
Fehima Dawy
- 8:30 55. Chilean Intercultural Education and Contentious Identities: Constructions of  
Sexuality and Gender in the Mapuche Community  
Kristian Lenderman
- 8:45 56. Mermaids, Mythology and Marble: A Search for Identity  
Emily McWilliams

### *Marsha Shields Ballroom*

- 5:00 57. Patterns and Change in the Portrayal of the Elderly in Print Advertising  
Joanna Hawkins, Lucero Castillo
- 5:15 58. Don't Bring It Home: How Emotion Work and Individual Identity Affect  
Activist Participation  
Anna Fetchick
- 5:30 59. I'm Feeding the World Tonight: The Impact of Moral Identity Standards on  
Mobile Loaves and Fishes Homeless Outreach Ministry  
Megan Robinson
- 5:45 60. Leading Occupy Austin: Constructing an Alternate Conception of Leadership  
Through Direct Democracy and Collective Action  
Lorenza Cigarroa
- 8:00 61. Friendship, Brotherhood, Sisterhood, and Family: Collective Identity, Social Ties,  
and Free Space as Motivation for Volunteers at the Ride on Center for Kids  
Caroline Wright
- 8:15 62. Performing Spanish: Gatekeeping in a First-Generation Latino Peer Culture  
Isaac Bernal
- 8:30 63. They May Be Up to No Good: The Heightened Surveillance of Men of  
Color on a Predominantly White Neighborhood Listserv  
Alice Nguyen

- 8:45 64. Silencing and Celebrating: Professors React to the Personal Experiences of Students of Color  
Susana Contreras

***Connie McNab Ballroom***

- 5:00 65. Moral Maximization: From Maxim to Context  
Michael Broz
- 5:15 66. Spatial Analysis of Habitat Change on the Salamanders of Barton Springs  
Emily Pawelek, Brandee Knight
- 5:30 67. A Sustainable Austin Is...  
Audrey Calhoun, Katie Campbell, Elise DiNuzzo, Elizabeth Funk, Liliana Galvez, Austin Gentry, Cate Jones, Grady Sampley
- 5:45 68. The Vacuum of National Memory: French Remembrance of World War II from 1943 to the Present  
Elise Riggs
- 8:00 69. Wolfscript: A Programming Language for Android  
Erick Bauman
- 8:15 70. Sati as Justification for British Intervention: Processes of Normalization, Representation, and Discourse  
Jennifer Juergens
- 8:30 71. Rental Housing Discrimination and the Great Recession  
Van Pham
- 8:45 72. Nero as Ulixes and Pyrrhus: Twin Aspects of the Destroyer  
Ryan Wicklund

***Merzbach Room***

- 5:00 73. Internships in Psychology  
Angela Klemm, Trey Thiele
- 5:15 74. Germany, Japan, and the Montreal Protocol  
Kylie LeBlanc
- 5:30 75. The Politics of Dance in Latin America  
Kate Hayden
- 5:45 76. Drawing Boundaries, Drawing Boxes: Female Spaces and Postmodernism at Michigan Womyn's Music Festival  
Kylie LeBlanc
- 8:00 77. The Economic Rise of Japan and China: Is China Following in Japan's Footsteps?  
Benjamin Bracher
- 8:15 78. Femicidio and the Latin American Culture  
Daniela Radulovich
- 8:30 79. German and Japanese Economic Downturns: How 1990s Changed 2010  
Jesse Chiu
- 8:45 80. Vulnerability Analysis of the Georgetown Salamander (*Eurycea Naufregia*) Habitat using GIS Software  
Kira McEntire

***Margaret Shilling Room***

- 5:00 81. Regulation, Education, and the Impact of Student Loans  
Brooke Chatterton
- 5:15 82. "Cap and Frown": Student Loan Debt and the Future of Higher Education  
Derrick Dolezal
- 5:30 83. Iceland: The Collapse of Wall Street on the Tundra  
Paul Erickson
- 5:45 84. The 40 Hour Work Week  
Marlys McKinney
- 8:00 85. Social Security Reform in a Post-Great Recession United States  
Elliot Kelly
- 8:15 86. Assessing the Impact of Research in Behavioral Economics on Policy-Making  
Kevin Hutzler
- 8:30 87. The Economics of Intellectual Property  
Kynan Murtagh
- 8:45 88. Avoiding Disaster: The Future of Financial Bailouts  
Nick Pate

***Roy B. Shilling, Jr. Room***

- 5:00 89. Isolation and Identification of Genus *Pseudomonas* from Ruter Shower Floor  
Blair Quattrochi
- 5:15 90. Distractions Can Be A Real Pain  
Ben Cardiff
- 5:30 91. Plastic Recycling Under a Mathematical Lens  
Yvette Niyomugaba
- 5:45 92. Math Asks: Water You Doing, Georgetown?  
Van Pham
- 8:00 93. Nocturnal or Diurnal? Day and Night Activity Patterns of the Georgetown Salamander (*Eurycea Naufregia*)  
Kira McEntire
- 8:15 94. Double Trouble for Local Salamanders: Substrate and Food Availability for Two Populations of the Endangered Georgetown Salamander, *Eurycea Naufregia*  
Jonathan Miley
- 8:30 95. The Apple Doesn't Fall From the Tree: Reproductive Characterization of the Newly Renamed Apple Snail, *Pomacea Megastoma*  
Allyson Plantz
- 8:45 96. Isolation and Identification of *Pantoea* Agglomerans, a Plant and Human Pathogen, in the Southwestern University Fountain  
Patrick Hooper

# CREATIVE WORKS AND EXHIBITIONS

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1. Musical Dialogue  
Erin Weber, Marie Smith, Jeffrey McKenzie, Will Danheim, Music Department  
Sponsor: Dr. Eri Lee Lam

Music written for two violins, viola and cello (called the string quartet) occurs commonly in Western music. Successful performance of chamber music with one instrumentalist to a part requires a different set of skills than either solo or symphonic performance. String quartets often highlight both the characteristics of each player's individuality and the players' collective ability to create blended sounds like an orchestra. This year, our newly formed string quartet explored some of the vast repertoire for the string quartet. To explore a variety of musical styles we selected movements from pieces written in different periods of history. Our understanding of each work's historical context and musical qualities such as harmony and texture influenced our approach. Every week, each member not only learned and practiced their part individually but became familiar with the other musicians' parts, building a conception of the pieces as a whole. Prepared with this knowledge, all players then rehearsed together twice a week. Each individual developed personal opinions about what articulation, phrasing, and timbre they preferred yet made compromises to achieve the most cohesive sound and interpretation possible. Working in a small ensemble this way develops our musicianship by requiring that each of us understand music history and style, express our own ideas, serve in both leading and supporting roles, and learn new ways of listening and adapting while performing.

2. Rescued by Rover  
Jeffrey McKenzie, Erin Weber, William Danheim, Jenna Gaska, Stacie Glowka, Music Department (Theory and Composition)  
Sponsor: Dr. Jason Hoogerhyde

This project will be a music performance of a soundtrack composed by Jeffrey McKenzie for the 1905 short silent film *Rescued by Rover*. The music is scored for violin, cello, and piano. During the performance, the film will be projected behind the musicians for the audience to see. The estimated duration of the performance is six minutes and thirty seconds.

3. *Nuclear Fusion Reactor*  
Vicente Estrada-Carpenter, Robert Lehr, Physics Department  
Sponsor: Dr. Steven Alexander

The goal of our project is to build a functioning fusor, nuclear fusion reactor. Amateur scientists have been building these devices to demonstrate nuclear fusion for quite some time. Our approach will be much more scientifically minded. We intend to study the reaction and understand just how this device works. We want to see what kind of energy output is possible with this device and whether we can make a more efficient design. One of our goals is to demonstrate that building a device like this is well within the capabilities of a college student. We want to inspire our peers and to demonstrate the possibilities of nuclear fusion.

4. *Sculpting with Sand*  
Ellen Hinds, Art and Art History Department and Physics Department  
Sponsor: Dr. Steven Alexander

Using PolyPavement<sup>®</sup> and sand we were able to construct a few small sculptures, by mixing sand with PolyPavement<sup>®</sup> and water then letting the mixture sit in a container for 24 hours. PolyPavement<sup>®</sup> is a compound typically used to fix or build sidewalks/pathways by filling cracks or spaces with sand and then adding PolyPavement<sup>®</sup> to harden it. The typical mix is 160 mL of water and 10 mL of PolyPavement<sup>®</sup>, then 80 to 90 mL of the mixture per two cups of sand.

5. *Bubble Display*  
Eric Oden, Physics Department  
Sponsor: Dr. Steven Alexander

Computer Science, with its complex programming languages and unfamiliar processing of logic, is often regarded as a "confusing" or even "boring" science. It is not often that the exciting applications of programming are presented in a clear and dynamic way. The *Bubble Display* device presents a rather simple computer program in a visually intriguing format. The display consists of sixty-four clear, liquid-filled tubes lined up against each other, each connected to a device that can release an individual bubble into the tube, which then rises to the top. All of these devices will be wired to a controller that is programmed to instruct the devices to release bubbles at specific intervals. The result is the ability for the released bubbles to create shapes, patterns, and even words as they rise through the tubes. The possibilities for this project are expansive, from visually appealing patterns, to the presentation of the time every minute in digital format, to announcements to scroll upwards in the form of bubbles. The display is most clearly a presentation of the synthesis of programming knowledge and physical application, and an example of how the combination of sciences (in this case, Computer Science and Physics) yields immense possibility.

6. *Composition for the Guitar: The Instrument's Influence on the Practice of Music Theory*  
Sean Stone-Ashe, Music Department  
Sponsor: Dr. Kiyoshi Tamagawa

As with every musical instrument, the guitar possesses its own unique timbre, method of playing, and technical limitations. The guitar is a fairly quiet plucked string instrument, which allows for simultaneous sounding of pitches. The tuning of its six strings facilitates the playing of certain keys, and the distinct relationship between the strings (EBGDAE) forms its own compositional language, which must be adhered to if a piece is to be playable on the guitar. These challenges have scared many composers away from the guitar. Nevertheless, they give the instrument a distinct musical flavor for classical and non-classical musicians alike, who take advantage of convenient theoretical and technical possibilities such as parallel motion, harmonics, implied harmony and counterpoint, tremolo, strumming, and more. These ideas have not only influenced conceptions of classical music theory, but the prevailing voice leading rules of popular music as well. Johann Sebastian Bach's *Prelude from BWV 998* (c. 1740), though originally conceived for the lute, demonstrates many of these guitaristic aspects. It is predominantly a single line of music with few vertical intervals. This gives it a feeling of implied counterpoint, and its reuse of simple motives in different keys allow for an expansive use of color. Heitor Villa-Lobos' *Prelude No. 1 in E minor* (1940) displays

several prominent elements of the guitar. These features include parallel motion, harmonics, and strumming. This piece, clearly conceived as a guitaristic work, shows off the potential dynamism and diversity of the guitar as an instrument.

7.



Carmen Gadt, Junior Painting Exhibit  
*In This Head of Mine*  
oil on canvas, 54inx40in, 2012  
Sponsor: Ms. Victoria Star Varner

*In This Head of Mine* is a painting made through an entirely intuitive method. The process involved listening to a selection of around two hundred songs while improvising with visual forms and colors as a direct response to the music. Each passing song with its different beats and lyrics inspired me to layer ideas in overlapping images. Influenced by Howard Hodgkin, my work intends to express a vitality and love of color reminiscent of the explosion of color in mid-century Pop and Abstract Expressionist art.

8.



Jamie Gardner, Junior Painting Exhibit  
*Insignificant, Incapable, Insecure, Timid, Dull*  
acrylic on panel, 8.75" x 28", 2012  
Sponsor: Ms. Victoria Star Varner

The painting, *Insignificant, Incapable, Insecure, Timid, Dull*, is made by a method derived from the Process Art movement, in which the primary meaning stems from the way a work is made (process) rather than its final form (the aesthetic object). In order to analyze the relationship among five negative words, their physical form, and the emotions they evince, each word was transferred onto a black panel with chalk and painted in white. The word was then intentionally obscured before the transfer of the next word. In this way, the words are partially "erased" from the panel. This work asks the viewer to think about what psychological, social, and cultural concepts may arise from the cumulative effect of words and our attempts to obscure them.

9.



Nikki Grona, Junior Painting Exhibit  
*Outfits*  
oil on Panel, 54" x 37.5", 2013  
Sponsor: Ms. Victoria Star Varner

For *Outfits* I invented a pattern painting comprised of modern commercial textile designs used in the contemporary fashion and design industry. I borrowed designs from current popular magazines and store catalogs, and followed fashion advice from the magazines about how to put together patterns and colors effectively in outfits. Working from the center outwards, I treated each section as an outfit and chose my colors, shapes, textures, and directions based on elements of design (shapes, lines, color) that are common to all art forms. Like the artists of the Pattern and Decoration art movement, this work expresses: an interest in intricate patterning, a reaction against minimalism, and seeks to embrace these forms associated with women's work. To this, I add my own contemporary taste and style.

10.



Sarah Loraine Kinney, Junior Painting Exhibit  
*0,1,1,2,3,5,8,13...*  
oil on canvas, 32 x 32 inches, 2012  
Sponsor: Ms. Victoria Star Varner

*0,1,1,2,3,5,8,13...* is an oil painting that presents the complex relationship between nature, mathematics and art. The subject matter is three pineapples in a row chosen because of the pineapple's close relation to the Fibonacci Sequence, a mathematical idea in which two numbers are added together to create the next number in the sequence. Remarkably, pineapples are fruits that develop in interlocking helices of five, eight, and thirteen. I then created a grid over the image and fully rendered only the pineapple sections that were dictated by the Sequence, alternating these with stark white squares of varying translucencies determined similarly by a series of numerical operations. This combined effect creates a randomly generated and yet remarkably rational pattern that is reminiscent of fractals, and helps us understand the subtle interactions between mathematics and the natural world.



11.



Candace Weigand, Junior Painting Exhibit  
*Cavernous*  
oil on canvas, 72" x 48", 2012  
Sponsor: Ms. Victoria Star Varner

*Cavernous* is an oil painting produced by working intuitively with color and form. I began with ideas related to the Romantic art movement in Germany, which sought to contemplate untamed nature quietly without rationalization or Enlightenment influence. My admiration for the artist Caspar David Friedrich inspired me to use a dark color palette, explore deep pictorial space, and seek to understand how vast and imposing relative scale can be in painting. Like the Romantics, I also sought to imply imminent danger. The process was spontaneous with built layers of color - painting out areas and superimposing new ideas. In this way the painting responds to my whims and emotions, yet reveals another influential source: German Expressionism of the 1920's and 30's. The finished painting is ultimately a reflection upon my own psyche.

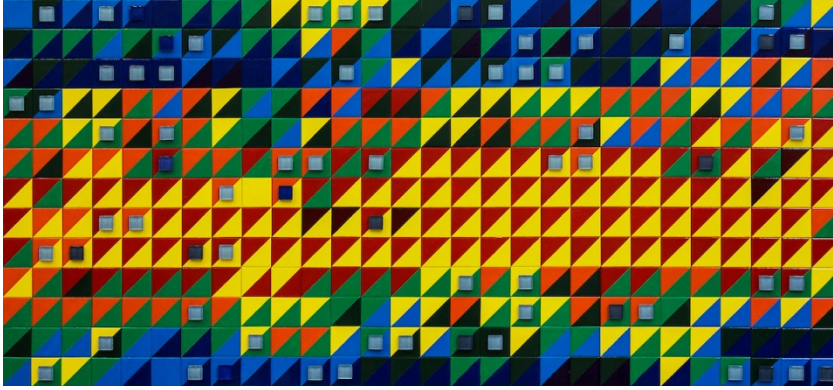
12.



Jessica Cox, Senior Art Exhibit  
*Prokaryotes*  
oil on canvas, 72" x 84", 2013  
Sponsor: Ms. Victoria Star Varner

The paintings and sculptures in my senior art exhibition, "*Lethal Attraction/ Fatal Weapon*" merge images of microbial biology and animal traps into alluring, organic shapes to create an environment of seductive safety out of lethal subjects. Animal traps fuse temptation (bait) and concealment (camouflage) so that they can deceive their prey into endangering themselves willingly and often eagerly. Bacteria and viruses correspond to traps in that they are invisible to the unassisted eye and have the potential to kill. By contrasting the danger of my subject matter with its innocuous appearance, I use my paintings as metaphors for social traps. My art calls upon viewers to contemplate whether traps-- such as ill-suited jobs or unhappy domesticity-- lurk within their own social and psychological circumstances.

13.



Kim Dembrosky, Senior Art Exhibit  
*Weather Patterns: 1960*  
enamel paint on ceramic tile, 24" x 53", 2012  
Sponsor: Ms. Victoria Star Varner

In my senior art exhibition, "Dembrosky, Inc.," I display two series of work. In the first, I question our relationship to the natural environment by translating data derived from natural weather phenomena into a color-coded system which I hand-paint onto common industrial floor tiles. Doing so creates brightly colored, geometric patterns dictated by the chance happenings of nature. In the second series, I challenge our relationship to the artificial environment of social institutions such as school, work, and the marketplace, questioning the effect these environments have on our innate creative drive. I do this by making large, playful paintings which I then cut up and stack or bind with industrial materials in order to create sculptural forms which fragment and conceal the original image. By forcing expressions of nature into unnatural forms, I contemplate the artificially-created systems that surround us and affect our experiences in this world.

14.



Rebecca Gordon, Senior Art Exhibit  
*Memories-A-Slippin'*  
oil on canvas, 42"x24", 2012  
Sponsor: Ms. Victoria Star Varner

In my series of large abstract paintings, "*Infinite Imaginings*," I express visually the construction of thought in a way that language cannot through an inventive and improvisational process of changing the painting over time while merging influences from mid-20th century art movements, especially Abstract Expressionism and the Pattern and Decoration movement, with the modern day commercial art forms of advertising and design graphics. This intuitive and reactionary painting process results in a visual dialogue on the canvas between expression and precision; the spaces I develop allow an expressive action which cannot be anticipated in advance to share a surface with premeditated qualities seen in careful and clean,

decorative lines. These two aspects are developed through the interactions of bold colors, varied brushstrokes, and a mix of geometric and organic lines.

## POSTER PRESENTATIONS

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15. Epithelial to Mesenchymal Transition in Breast Cancer Cells  
Noah Bierwirth, Busola Okunnu, Biology Department  
Sponsor: Dr. Rebecca Sheller

Metastasis of cancer cells occurs when cells from cancerous tumors migrate from their tissue of origin to other tissues and organs in the body. The epithelial to mesenchymal transition, a process whereby epithelial cells lose their phenotype and take on the characteristics of mesenchymal cells, is thought to be a critical step for the metastasis of carcinomas. To study this process in breast cancer cell lines, we used immunoblot analysis to observe the expression of epithelial or mesenchymal protein markers such as E-cadherin, N-cadherin, Vimentin,  $\beta$ -catenin, Slug, and Snail. Additionally, we measured transepithelial resistance in the epithelial breast cancer cell lines, MCF-7, MDA-MB-415, and MDA-MB-157, and in the normal epithelial MDCK cell line to monitor the formation of tight junctions, which ordinarily connect adjacent epithelial cells. We compared the expression of protein markers to the presence of tight junctions. MCF-7 cells expressed epithelial markers and formed tight junctions within 4-5 days. In contrast, MDA-MB-157 cells expressed a mixture of epithelial and mesenchymal markers and did not form tight junctions even after 14 days in culture. These data confirm the aggressive nature of the MDA-MB-157 breast cancer cell line and supplement the studies on epithelial to mesenchymal transitions.

16. Potential Use of Natural Melanophore Patterns for Recognition of Individual Georgetown Salamanders (*Eurycea naufragia*)  
Jenifer Harren, Alexandria Hill, Biology Department  
Sponsor: Dr. Benjamin Pierce

Marking and recapturing individual organisms is often important for estimating population size, estimating dispersal, and measuring growth rates in natural populations. However, applying permanent marks to small animals such as aquatic salamanders is often stressful, time-consuming, and expensive. We tested the ability to recognize individual Georgetown Salamanders (*Eurycea naufragia*) on the basis of differences in naturally-occurring melanophore patterns on the dorsal surface of the head. Using visual implant elastomers, 90 salamanders at Swinbank Spring and 63 salamanders at Twin Springs were individually marked in the summer of 2010. All salamanders were photographed at the time of marking. Over the next 30 months, we recaptured and photographed salamanders monthly at both sites. Open-source pattern recognition software (Wild-ID) was used to match photographs of recaptured salamanders with the original photographs taken at the time of capture. The use of the elastomere marks allowed us to compare the accuracy of photograph matching. We found that the pattern recognition software correctly matched photographs of most adult salamanders, but was less accurate at matching patterns of salamanders originally photographed as juveniles. Our

results suggest that naturally occurring melanophore patterns may be useful for identifying individual Georgetown Salamanders.

17. Pirate Operations Management Simulator: On Deck!  
Addison Dean, Erick Bauman, Alexander Heath, Mathematics and Computer Science Department (Computer Science)  
Sponsor: Dr. Suzanne Buchele

The Computer Science capstone cohort is creating a business management simulator for use by instructor of business Alan Crudden and Southwestern business students. Instructor Crudden intends to utilize this simulator in an effort to teach his future students key business principles and practices. The Pirate Operations Management System (POMS) is being developed to fulfill this need. The nine students of the Computer Science capstone class have been divided into three sub-teams, in charge of data organization, the simulator, and the game environment and user interface. This poster presentation represents the game environment and user interface: how POMS users will interact with the simulator in a game-like manner. Our presentation, coupled with the presentation of the remainder of our cohort, will illustrate the development process of the entire POMS project.

18. Pirate Operating Management System: Below Deck  
Kayla Saenger, Ryan Saurage, Ryan Washburn, Jefferson Ellinger, Jason Catron, Taylor Elkins, Mathematics and Computer Science Department (Computer Science)  
Sponsor: Dr. Suzanne Buchele

The Pirate Operating Management System (POMS) is a game simulation designed by the 2013 Computer Science capstone class for Instructor Alan Crudden, who asked the class to design an improved way for his business students to apply the knowledge they gain in his Quality Management class. The POMS project aims to help business students learn key concepts in the areas of product management, inventory management, and quality management. The goal of this system is to create a simulation tool that would be more intentional about learning objectives and hence more useful than existing tools. The simulator will use data input by the user via the game-like user interface, as well as input stored in a database, to mimic simplified real world business situations. The database will keep track of the simulation as it is played, and users will be able to view this information at any time during the game. The system will not only help quality management and help other business students to test their knowledge, but also allow the Computer Science capstone class to develop a moderately-sized software project while working as a software engineering team.

19. "The Land of Good Water:" A Native History of Georgetown, Texas  
Shelby Gebhart, Economics and Business Department (Economics)  
Sponsor: Dr. M. Anwar Sounny-Slitine

Georgetown, Texas, with its diverse geography resulting from its location on the Balcones Escarpment, has been a highly sought after land to many groups of people. While the histories of the European settlers is largely recorded and documented, that of the Tonkawas and other Native tribes that first inhabited the area remain mostly through oral stories and geographic markers. This project includes a spatial analysis of historic Georgetown that includes important Native sites, revealing a different side of Georgetown's rich history.

20. An Air of Collaboration  
Devin Corbitt, English Department  
Sponsor: Dr. Elisabeth Piedmont-Marton

The duality that comes with being an undergraduate consultant in the writing center of a small liberal arts school such as Southwestern allows consultants to enter into a world of collaboration far earlier than most conventional students at large colleges. We are able to develop close relationships with our peers and professors alike, working in conjunction to make the writing process positive and beneficial for all. This has been exhibited most recently through the collaboration of consultant David Boutté and the Business Writing class. During the spring 2012 semester, David worked closely with this class to increase their writing proficiency, leading to a dialogue between students, professor, and writing center that likely would not have happened without David. A professor within the art history department also experienced a similar collaboration through the efforts of consultant Paige Duggins. Paige was fulfilling her Fine Arts lecture requirement and was asked to write an art history paper. Being unfamiliar with the field, she was unsure how to proceed, so she opened a conversation with the professor that ultimately led to a class day devoted to writing an art history – to the benefit of all students and the professor. Crossing and even erasing hierarchical lines leads to a unique experience for everyone at our university, which is part of what sets us apart. Because of our size and the open environment created at our school, we have made a place for writing centers and collaboration impossible to find at other universities.

21. The Undergraduate as Administrator  
Andrea Gannon, English Department and Debby Ellis Writing Center  
Sponsor: Dr. Elisabeth Piedmont-Marton

In my essay, “The Undergraduate as Administrator,” I discuss the ways in which the writing center at a small liberal arts college, Southwestern University, has changed over the past five years under different directing styles of undergraduate administrators. Through interviews with past directors, I show how our Debby Ellis Writing Center’s methodology has adjusted to accommodate the writers who have emerged from a major curriculum change. Last year, a shift in the university’s writing program of study occurred when Southwestern University elected to eliminate its traditional first year “college writing” course in favor of a widened multi-discipline approach. This led to an increase in the number of clients who visited the Debby Ellis Writing Center and affected what they were looking for in a consultant. Based on the interviews I conducted with previous staff members as well as my own observations during four years of study at Southwestern University, I illustrate the new steps that the Debby Ellis Writing Center has undergone in order to address shifting student expectations. I also explore how staff members have adapted to this new methodology. I have been a client, an intern, a consultant, a director, and an undergraduate during the period in which these modifications to the curriculum and staff occurred in the Debby Ellis Writing Center, which gives me a unique perspective from which I can describe my experiences in the role of both undergraduate and administrator.

22. Catch-22  
Andrew Reynolds, English Department  
Sponsor: Dr. Carina Evans

This project focuses on Joseph Heller's *Catch-22* and its impact as it has evolved from its original publication to our present post-9/11 moment. The project will also function as an opportunity to reflect upon and study the importance of undergraduate research in the humanities. The research is centered on a rereading of Joseph Heller's novel, *Catch-22*, and an investigation of the evolving critical and pedagogical responses to the novel since it was first published. *Catch-22* functions as literary satire and dissent in that it is critical of the structures that it creates within the narrative. It was also written just a few years prior to significant social protests and political turmoil, which suggest prescience and timeliness in the work itself. The project will briefly map the changes in critical readings over the years to reflect an ever changing political and theoretical landscape. The analysis is guided by the following questions as starting points for research:

- How was Heller received from the early 60's up until the current period in literary and American history? In what ways is this perception tied to American cultural/historical contexts?
- What changes in literary criticism and/or theory explain these shifts in interpretations?
- Is Heller relevant today? What is strictly temporal for Heller, and what is transcendent?

23. Indescribable... Indestructible! Nothing Can Stop it! Desertification vs. Global Average Temperature Increase  
Ivan Cruickshank, Biology Department  
Sponsor: Mr. M. Anwar Sounny-Slitine

Deserts are one of the most barren landscapes on the planet. The searing heat, loose soil, and minimal rainfall make deserts a hostile environment for plant and animal life. Each year every desert expands, further swallowing the surrounding area. The Sahara, for one, is slowly engulfing the fertile sub-Saharan land that the farmers of Africa rely on for agriculture. Using a remote sensing based spatial analysis of the Sahara, the Gobi, the Kalahari, the Australian, and the Chihuahua deserts, this project compares and contrasts how rapidly each desert expands each year. This illustrates how fast each desert is growing and whether smaller or larger deserts expand faster, which helps us to extrapolate future land loss due to desertification. Temperatures of the areas surrounding the deserts are additionally compared with rates of desertification and global average temperature increase to analyze the correlation between higher average temperatures and increased desertification.

24. Organic Food Miles: Does Going Organic Mean a Smaller Carbon Footprint?  
Steve DeGrand, Environmental Studies Interdisciplinary Program  
Sponsor: Mr. M. Anwar Sounny-Slitine

Is it possible that maintaining an organic diet increases one's carbon footprint through food miles? In this analysis, food miles is defined as the distance traveled by the food from the grower to the market. This project consists of calculating food miles and proposing ways to reduce them. Shopping for organics can often increase the average miles traveled by the product. Scenario analysis is used to address scenarios regarding consumers shopping for only organics at different grocers and markets and comparing them to local consumers and conventional consumers. Using data collected in 2012's

Environmental Studies capstone work, updated charts and maps show the distance traveled by these growers to their various grocers and markets. This visual resource will enable an even broader understanding of food miles. In this way, an average shopper searching for conventional goods at a conventional grocer is compared to a strictly organic consumer. The project shows that farmer's markets can serve as a way to offset the environmental costs of eating organic by reducing the overall average of food miles.

25. A Land Called Home: A Visualization of the Migration of Native American Tribes in the United States

Jessica Enyioha, Environmental Studies Interdisciplinary Program  
Sponsor: Mr. M. Anwar Sounny-Slitine

Is Native America dissolving? This project maps Native American tribes throughout the United States and their recent migratory patterns. Utilizing 2010, 2000, and 1990 U.S. Census data, maps of recognized tribes are created for the United States. Each set of data is illustrated within three maps that display tribes' migration and tribes who remained in the same area since 1990. The maps also indicate each tribe's population fluctuated in thirty years' time. By comparing the geographical locations of Native Americans over the course of three decades, migratory patterns are revealed. A comparison of these maps address questions of how Native American tribes have been able to practice their culture and honor their sacred spaces outside of their home lands.

26. Raising the Roof: Mapping the Solar Thermal, Reflective, and Green Rooftop Potential in Reducing the Overall Carbon Footprint of Southwestern University Campus

Benjamin Galindo, Environmental Studies Interdisciplinary Program  
Sponsor: Mr. M. Anwar Sounny-Slitine

Southwestern University is known for many of its "green" initiatives, some of which include its reliance upon 100% wind energy, a campus-wide composting effort, as well as broad support for student-led sustainability. Despite all of this, while SU may already be considered highly environmentally sustainable, the sky is literally the limit to the degree in which the university can increase its overall sustainability and decrease its carbon and ecological footprints. This study utilizes GIS in order to explore the potential benefits of implementing a sustainable rooftop system. This system would utilize living plants, reflective materials, and solar collecting devices, either standalone or in combination with one another, in order to reduce total energy use. Using various GIS tools, remote sensing data, as well as campus energy data supplied directly by the university, the amount of possible roof space available for one or more of these rooftop additions was determined, the estimated costs (both initial and lifecycle) were derived, and the potential financial and environmental benefits were projected. The results of this study show that while there is a large amount of roof space available, the most drastic energy savings would occur on the rooftops located on top of the freshmen residence halls, library and the Robertson gym. In conclusion, the steep initial investment on these types of rooftop systems could be paid off in a realistic time frame, in terms of both economic and environmental returns, and would undoubtedly contribute to Southwestern's persistent long-term vision of achieving greater sustainability.

27. Why are Students Tardy? A Spatial Analysis of the Factors Leading to Tardies  
Dakota McDurham, Environmental Studies Interdisciplinary Program  
Sponsor: Mr. M. Anwar Sounny-Slitine

In response to state budget cuts, many school districts are beginning to eliminate busing to magnet schools. With this change, many principals are noticing a dramatic spike in the number of tardy students. Tardies have increased from an average of 5 to 15 tardies a week before the cuts, to an average of 100 a week. The average arrival time of tardy students has also increased by almost an hour. This spike in tardies introduces the following questions: Is distance from the school a major factor in whether or not a student is tardy? What other factors make students tardy? This study started with the school's tardy information, a database containing students based on an arbitrary student ID number, their address, and the number of times they have been late/marked tardy. The addresses were geo-referenced in order to protect anonymity. The distance of the students' homes from school could then be calculated along with other factors found in the census. This data was graphed comparing the difference between each distance zone and their respective tardies. Other factors were also analyzed such as: poverty and income levels, access to vehicles, and single parent or grandparent housing.

28. Where's the Water?: Mapping Water Vulnerability in sub-Saharan Africa  
Jennifer O'Neal, Independent Major: Geographical Poverty Studies  
Sponsor: Mr. M. Anwar Sounny-Slitine

Reports of global water crises seem to occur at a more rapid pace day by day. Global agencies have emphasized water scarcity as a crucial problem both in developed and developing countries. Climate change scientists predict that water scarcity will continuously be exacerbated, especially in areas of the globe immediately north and south of the Equator. In sub-Saharan Africa, many countries are already hurting from physical water scarcity and drought; however, even in areas where physical water scarcity is not present, economic water scarcity is taking a massive toll. Utilizing GIS technology, the overlaying of maps of economic and physical water scarcity in sub-Saharan Africa with poverty rates of the area demonstrates the geographical location of populations that are at the highest risk of detrimental water scarcity. This will target areas where the people are unable, due to lack of resources, to alter their circumstances. This data will better inform governmental agencies, urban development planners, and aid agencies on where to target water development projects and where the highest critical needs are located.

29. Green or Green-Washed? Mapping Sustainability Rankings in Austin, Texas  
Grady Sampley, Elizabeth Funk, Environmental Studies Interdisciplinary Program  
Sponsor: Mr. M. Anwar Sounny-Slitine

The City of Austin has a reputation for being a green city, from its comprehensive Climate Protection Plan to its emerging green based economy. However, could these jeans that Austin has put on be too green-washed? Austin regularly ranks among the 'greenest' cities in the United States in mainstream top sustainability rankings lists, such as Corporate Knight, Mother Nature Network, and others. While these lists influence the general public's perceptions of the cities listed, the lack of clear criteria on what a green city actually is may mislead or distort public perceptions. This project utilized GIS technology to create an atlas of visual representations illustrating the indicators used to measure Austin's sustainability and to, thereafter, critically analyze the validity of these



rankings and indicators. Indicators include - yet are not limited to - LEED buildings per capita, green spaces, and traffic congestion, in addition to socioeconomic data and environmental justice issues, in order to create a more all-encompassing picture of Austin. This project provided a clearer understanding of Austin's environmental standings and what the city's government and citizens must change in order to be a true sustainable city, in all senses of the word.

30. Caffeine Crazy! The Effect of Starbucks on the Distribution of Coffee Shops in the Greater Austin Area

Ashley Scott, Environmental Studies Interdisciplinary Program  
Sponsor: Mr. M. Anwar Sounny-Slitine

Over the past two decades the number of coffee vendors and coffee consumers has increased markedly across the country. This trend is often attributed to the rise of the Starbucks Corporation which brought the novelty of espresso-based flavored drinks to the mainstream. These types of coffees have come to be associated with Starbucks, but there are still a number of thriving, locally owned coffee shops serving specialty coffee. This study looks at the difference in distribution of Starbucks versus small-scale coffee retailers over time in the greater Austin area. By mapping the locations of both types of coffee retailers at several different points in time, it is possible to see the increased coffee demand that has taken place and the subsequent effect on small-scale coffee shops.

31. Biomechanical and Statistical Effects of Changing the Three-Point Line in Division III Women's Basketball

Katelyn Bartell, Kinesiology Department  
Sponsor: Dr. Scott McLean

Basketball shooting distance affects shooting accuracy. Although the mechanics of shooting are similar, these are not constant at all distances from the basket. Purpose: To analyze the effect of increased distance of the basketball three-point line on shot kinematics and shooting performance of women's basketball players. Methods: Ten players, mean (sd) age of 19.0 (0.6) yrs, height of 173.7 (8.7) cm, and weight of 66.1 (8.4) kg from the Southwestern University women's basketball team shot from the current three-point line, 20'9" from the basket, and the old line, 19'9" from the basket in order to compare knee range of motion (ROM), release height, release velocity, and release angle. Two cameras filmed the shooter and flight of the ball from a sagittal view at 60 Hz. Three-point field goal (FG) and three-point FG per game statistics for all Division III women's basketball teams were also compared for the 2009-10, 2010-11, and 2011-12 seasons. Results: Shots taken from the new three-point line resulted in about 3% faster velocities at release than those from the old line ( $t(19)=4.17$ ,  $p<0.01$ ). Use of the new line in the 2011-12 season resulted in a 1.6% reduction of three-point FG percentage than the previous two seasons ( $p<0.01$ ); the 2011-12 season also produced a 7.9% decrease in the number of three-point FG made per game than the 2010-11 season ( $p<0.01$ ), but not the 2009-10 season ( $p=0.09$ ). Conclusion: The change in the three-point line distance had a meaningful negative effect on the performance of Division III women's basketball players.

32. The Effect of Cardiovascular Drift on the Efficacy of Exercise Prescription  
Katherine Forester, Kinesiology Department  
Sponsor: Dr. Scott McLean

Due to the difficulty in measuring metabolic cost in the field, heart rate (HR) is often used to prescribe exercise intensity. Purpose: To examine the effect of cardiovascular drift (CVdrift) on the efficacy of exercise prescription (ExRx). Methods: Eight women with a mean (sd) age 21.6(2.0) years, body mass 70.9(11.0) kg, height 163.7(6.0) cm, and VO<sub>2</sub>max of 33.7(4.2) mL/kg/min, each performed two cycling trials for 30 to 45 min at work rates that elicited 50% and 70% of VO<sub>2</sub>max. HR (bpm) and VO<sub>2</sub> (mL/kg/min) were recorded throughout each trial and values at the beginning, middle, and end of exercise across both intensities were compared using 3 x 2 two-way repeated measures ANOVAs. Repeated measures ANOVAs were used to compare responses across time within each exercise intensity. Results: Estimated work rates accurately elicited 50% and 70% of HR<sub>max</sub> and VO<sub>2</sub>max at 5 min of exercise. For HR, there was a significant effect of both time ( $F(2,14) = 124.8, p < .001$ ) and intensity ( $F(1,7) = 312.0, p < .001$ ), and a significant interaction between time and intensity ( $F(2,14) = 6.14, p = 0.012$ ). There was a significant effect of time on HR at both the 50% intensity ( $F(2,14) = 40.74, p < .001$ ) and 70% intensity ( $F(2,14) = 101.9, p < .001$ ). VO<sub>2</sub> increased significantly due to both time ( $F(2,14) = 6.63, p = .009$ ) and intensity ( $F(1,7) = 35.3, p < .001$ ) but there was no interaction, and the significant effect of time was only at the 70% intensity ( $F(2,14) = 3.90, p = .05$ ). Discussion: The main finding of this study was that HR and metabolic demand became increasingly dissociated across time at both intensities. This dissociation was more pronounced at an intensity of 70% of VO<sub>2</sub>max than 50% of VO<sub>2</sub>max. This finding implies that during prolonged exercise at a steady work rate, HR becomes increasingly less valid as a surrogate for metabolic demand of exercise. Key words: Cardiovascular drift, exercise prescription, metabolic drift.

33. The Effects of Heading on Neurocognitive Function in Female Collegiate Soccer Players During an Entire Soccer Season  
Sarah Nonaka, Kinesiology Department  
Sponsor: Dr. Jimmy Smith

Recently, much debate has occurred regarding the effects of repeated heading by soccer players on their neurocognitive function. Purpose: To determine the effects of heading on neurocognitive function in female collegiate soccer players during an entire soccer season. Methods: Twenty-four members of the 2012 Southwestern University Women's Soccer team completed the ImPACT test during preseason and postseason, and self-reported the number of headers for the week immediately prior to each testing session. Amount of playing time for each player was determined from records obtained from the Southwestern University Athletics Department. The six composite scores and the cognitive efficiency index from the ImPACT test were measured in each session. Paired t-tests were used to evaluate neurocognitive performance at each of the testing periods. Multiple regressions were run to compare the independent variables of playing time and number of headers to the seven ImPACT test composite scores from the preseason and postseason testing periods. Results: There was an increase in visual motor speed, a decrease in reaction time, and an increase in cognitive efficiency from preseason to postseason ( $t(23) = -4.63, p < 0.001$ ), ( $t(23) = 2.17, p = 0.041$ ), and ( $t(23) = -2.45, p = 0.022$ ), respectively. During preseason, number of headers performed significantly predicted reaction time ( $F(1,22) = 5.37, p = 0.03$ ), and explained approximately 20% of the variance in reaction time ( $r^2 = 0.196$ ). Number of headers

performed significantly predicted cognitive efficiency ( $F(1,22) = 5.56, p = 0.03$ ), and explained approximately 20% of the variance in cognitive efficiency ( $r^2 = 0.202$ ). During postseason, number of minutes played significantly predicted visual memory ( $F(1,22) = 4.71, p = 0.04$ ), and explained approximately 18% of the variance in visual memory ( $r^2 = 0.176$ ). Conclusion: The changes in these neurocognitive variables from preseason to postseason indicated that athletes performed better postseason. The number of headers and the total playing time across one season appear to have had no negative effects on neurocognitive function in these soccer players.

34. The Acute Effects of Hatha Yoga on Psychological and Physiological Measures Associated with Stress

Lyndsey Resnik, Kinesiology Department

Sponsor: Dr. Scott McLean

Objectives: Hatha yoga practices induce relaxation and have been used to alleviate stress-induced disorders such as insomnia, anxiety, and depression. The purpose of the present study is to measure the acute effects of Hatha yoga on psychological and physiological measures associated with stress. Methods: Twenty healthy male and female volunteers ( $20.8 \pm 1.0$  yrs,  $171.8 \pm 6.9$  cm,  $67.2 \pm 15.9$  kg) participated in this study. Each participant completed a 43-minute session of Hatha yoga and a 43-minute session of studying (which served as the control). Each session was separated by one week. The design was balanced such that half of the participants completed the yoga session first while the other half completed the control session. Heart rate and mood (assessed using an Affect Grid) were measured prior to, immediately after, and thirty minutes after each session. Changes in the dependent variables were assessed in a 2x3 (condition x time) repeated measures ANOVA. Results: Heart rate ( $p=0.611$ ) did not change between the pre and post-test measurements (Table 1). Measures of mood significantly interacted ( $F(2,38)=8.159, p=0.001$ ) between condition and time. Subsequently, two one-way ANOVAs were performed to assess the changes across time for each condition. Arousal was affected by yoga ( $F(2,38)=7.98, p=0.001$ ). Specifically, arousal increased immediately after completing the yoga session but did not persist. However for the control group, arousal did not change ( $F(2,38)=0.176, p=0.839$ ). Likewise, the state of pleasure was affected by yoga ( $F(2,38)=9.82, p<0.001$ ). Specifically, pleasure significantly improved after completing the yoga session and this effect persisted through the 30-minute post-test assessment. The control group exhibited a small but significant change in the state of pleasure ( $F(2,38)=7.66, p=0.002$ ). Specifically the control group exhibited little change immediately after completing the session, but this measure significantly increased at the 30-minute post-test assessment. Conclusions: Overall, Hatha yoga did significantly improve psychological state, but not physiological state.

35. Creation of a Thermoacoustic Generator

Karl Kleinsasser, Caroline Weston, Physics Department

Sponsor: Dr. Steven Alexander

The thermoacoustic effect is a phenomenon where a difference in temperature between two objects can create sound waves. This effect has been known about since at least 1859, yet relatively little research has gone into applications of the phenomenon when compared to other ways of harnessing energy from heat. This study explores the possibilities of using the sound produced by a difference in heat in order to generate electricity by creating a device designed to do just that. A thermoacoustic generator uses a heat source, such as the sun or combustion, in order to amplify a small source sound.

Once this sound is amplified, it will be converted back into electricity using a magnetic coil, similar to a speaker. Through this process, a device can be created that can generate electricity using virtually no moving parts and hopefully provide an additional option for harvesting thermal energy. In addition to the construction of the generator, it has been tested extensively in order to gather as much information about the efficiency of its operation and how it can be improved. This project's main goals are to improve understanding of practical uses for thermoacoustic devices and demonstrate that they can be used effectively to generate electricity.

36. Improved Lead-acid Charge Efficiency by use of a DC to DC Buck-Boost Voltage Regulator in stand-alone Photovoltaic Systems  
Jean Pierre Murenzi, Physics Department  
Sponsor: Dr. Steven Alexander

Photovoltaic (PV) cells produce a wide range of voltages depending on the sun irradiance and temperature conditions. The energy that they produced is usually stored in widely used lead-acid batteries. The charge of these type of batteries, however, requires regulation of the charge voltage for two particular important reasons: 1) the chemical reactions that need to occur during charge happen only when a certain minimum voltage is reached and 2) very high charge voltages damage the battery's internal chemistry which in turn reduces the battery's lifetime. In this paper, a DC to DC buck-boost voltage converter was used to regulate the output voltage of a 450W photovoltaic to 13.6V, while charging a 250 amp-hrs lead-acid battery. The buck part of the buck-boost converter stepped the PV output voltage down every time it exceeded 13.6V and the boost part stepped it up whenever it was lower than 13.6V. This regulation not only allowed the recovery of the power that could not have been delivered to the battery before because the PV output voltage was lower than the voltage threshold required by the battery's chemistry, but it also guaranteed that the battery chemical content was not damaged in the process of charging it.

37. Training Attention to Enhance Suppression  
Thomas Bobbitt, Psychology Department  
Sponsor: Dr. Jacqueline Muir-Broaddus

This study was designed to assess whether a single session of attention training can enhance the ability to suppress (relatively) emotionally neutral thoughts. In individual testing, 38 college students were each first given a target word (e.g., house) and asked to suppress this word for the remainder of the experiment (about 8 min). Participants were then randomly assigned to one of the two attention tasks: the training program or the control program. For the attention task, participants completed a series of trials in an interactive computer program. Each trial consisted of the simultaneous presentation and fading of 2 words (one of which was usually the target word) followed by the appearance of a cue. For the training program, the cue never appeared in place of the target word, but in place of the other word on the screen. However, cue location was random in the control program. Next, the participants completed an attention bias assessment task (word association task) while under a high time pressure (i.e., 3s for each word). During this task, participants were presented with 16 word prompts, four of which were closely connected to the target word, and asked to associate a word with each prompt. A participant's failure to suppress was quantified as the number of times he or she associated the target word during this task. Contrary to predictions, participants who had

undergone attention training were no better at suppressing the target word than were control participants.

38. Examining the Effects of Gender and Sexual Orientation on Preferences for Gynecologists  
Sarah Dorer, Samantha Sada, Psychology Department  
Sponsor: Dr. Traci Giuliano

The present study examined the influence of gender and sexual orientation on perceptions of gynecologists. As part of a 2 x 2 between-subjects design, sixty-four female undergraduates viewed the (fictitious) web site of a gynecologist (who was either female or male and who was either gay or straight) and then rated the perceived competence of the gynecologist as well as their own level of comfort with the gynecologist. Based on previous research which found that women perceive higher levels of comfort and compassion with female gynecologists than with male gynecologists (Cook, 2011), and studies showing that lesbians are sometimes stereotyped as cold, whereas gay men are rated as warm (Asbrock, 2010), we predicted an interaction between gender and sexual orientation such that participants would feel most comfortable with a heterosexual female gynecologist or a homosexual male gynecologist, as compared to a heterosexual male gynecologist or a homosexual female gynecologist. No specific predictions were made for competency. Contrary to our predictions, participants rated their perceived comfort level similarly regardless of gender and sexual orientation. Interestingly, there was a marginally significant interaction between gynecologist gender and the gynecologist's sexual orientation, such that participants rated homosexual female gynecologist as more competent than heterosexual female gynecologists. These results suggest that women make judgments of comfort with their gynecologist based on other factors besides the gynecologist's gender and sexual orientation. However, judgments of competency may be influenced by factors such as gender and sexual orientation. (n=240)

39. Perceptions of Dating in Adolescence and Self-Esteem in Emerging Adulthood  
Sara Goodman, Psychology Department  
Sponsor: Dr. Erin Crockett

A number of developmental transitions occur in adolescence—puberty begins, bodies change and grow, and interest in dating emerges. Importantly, adolescent dating has been linked to a number of both positive and negative psychological outcomes, ranging from social acceptance to risky sexual behaviors (Furman et al., 2009). We argue that past research's focus on quantity, rather than the quality, of adolescent relationships makes it hard to explain these diverse psychological outcomes. Consistent with preliminary research (Ellis, 2009), we hypothesized that the quality of adolescent relationships matters more than the quantity of adolescent relationships when predicting an important component of psychological well-being: self-esteem. Students (N = 104) at a small liberal arts university in central Texas completed a survey that assessed self-esteem (using the 10-item Rosenberg self-esteem scale), number of adolescent relationships, and perceptions of past adolescent dating. A multiple regression analysis in which the number and quality of adolescent relationships were entered as predictors of self-esteem revealed that adolescent relationship quality, as opposed to number of relationships, was the most significant predictor of emerging adulthood self-esteem. In other words, when people think back to their adolescent relationships, the perceptions of those adolescent relationships is more strongly associated with self-esteem, not merely

how much they dated. Given that adolescence is such an important time for the development of self-esteem (Erol & Orth, 2011), one implication of this research is the need for youth intervention programs which can enrich adolescent dating experiences by teaching adolescents how to have healthy romantic relationships.

40. Opposites Don't Always Attract: The Matching Hypothesis and Openness in Romantic Relationships  
Anna Hartmann, Annelise Carlin, Psychology Department  
Sponsor: Dr. Erin Crockett

People generally base their views about relationships on the saying, "Opposites attract." However, research does not support this common belief. Instead, people are more attracted to those who are similar to themselves (i.e., the matching hypothesis; Back, Schmukle, & Egloff, 2011). For example, research has found that individuals are more attracted to partners with similar weight statuses (Schafer & Keith, 1990). But, does the matching hypothesis hold true across all personality types? Specifically, we were interested in whether openness altered individuals' preferences for physically similar romantic partners. Openness refers to an individual's independence and preference for variety (Myers, 2011). As such, it logically follows that individuals who were more open would have lower preferences for physical similarities in a romantic partner. To assess this hypothesis, we assessed personality and the similarity between a participant's physical fitness and his or her ideal romantic partner's physical fitness (N = 138). We performed a regression analysis and found an interaction between openness and similarity in physical fitness. Consistent with the matching hypothesis, people who were low in openness were more likely to be attracted to romantic partners who were similar to themselves than to partners who were dissimilar. However, people who were high in openness were equally likely to be attracted to romantic partners who were similar or dissimilar to themselves. Overall, this finding is important because it suggests that in order to understand romantic relationships, we need to not only consider the matching hypothesis, but also an individual's personality.

41. Three's a Crowd...Or is it? Examining Public Perceptions of Polyamory  
Sarah Johnson, Jordan Herselman, Kevin Hutzler, Psychology Department  
Sponsor: Dr. Traci Giuliano

Although public awareness of non-monogamous relationship orientations has increased over time, relatively little empirical attention has been devoted to this topic. In order to broaden the literature on non-monogamy, we conducted three studies to examine people's perceptions of polyamory. In general, we found that people have several negative perceptions about polyamorous relationships that do not accurately reflect how these relationships function. Additionally, as participants reported more traditional traits (such as political conservatism, high religiosity, and heterosexuality), they expressed more negative attitudes toward polyamory. Finally, an experimental manipulation revealed that compared to participants who received a standard definition, participants who received additional information about polyamory (distinguishing it from other forms of non-monogamy) or who were asked to consider the advantages and limitations of their own monogamous relationships had more positive attitudes toward polyamory. In general, our research suggests that education about polyamory can potentially help to dispel common stereotypes about this relationship orientation.

42. Development of a Concise Measure of Attitudes Toward Polyamory  
Kevin Hutzler, Jordan Herselman, Sarah Johnson, Psychology Department  
Sponsor: Dr. Traci Giuliano

The general approach in assessing perceptions of non-monogamous relationships is to assess them as a whole—ignoring differences among the individual relationship styles—which can lead to misconceptions of the various orientations. To address this gap, we created a new 7-item measure of attitudes toward polyamory and validated it in 3 samples. Sample 1 used a general adult sample to create the initial version of the Attitudes Toward Polyamory Scale. In Sample 2, the responses of college students were used to revise the scale and to obtain preliminary evidence for construct validity and test-retest reliability. Sample 3 used a different general adult sample to confirm the factor structure of the scale and to further establish convergent and divergent validity. As expected, participants who held more traditional beliefs (such as favorable attitudes toward monogamy, politically conservative beliefs, and strong religious beliefs) were more likely to have negative attitudes toward polyamory, whereas participants with thrill-seeking attitudes and behaviors were more likely to have positive attitudes toward polyamory. Our results indicate that the Attitudes Toward Polyamory Scale is a brief, reliable, and valid measure that can be used in future research to assess people's attitudes toward the polyamorous relationship orientation.

43. The Problem with Happily Ever After: Fate-based Relationships, Neuroticism, and Infidelity  
Michelle Cincunegui Legator, Psychology Department  
Sponsor: Dr. Erin Crockett

Disney fairytale movies teach us that the romantic relationship between the prince and princess is predestined to succeed from the very beginning. Although flawed, this mentality leads some individuals to believe that “meant to be” relationships will succeed no matter what the circumstances. Unfortunately, this fate-based view of relationships makes individuals less likely to apply meaning or importance to choices that could harm their relationship. As such, it logically follows that people who believe relationships are based on destiny and fate would view infidelity more negatively than those who believe relationships require effort. To test this idea, we measured beliefs toward relationship success (i.e., fate-based or work-based) and attitudes towards infidelity in college students (N = 139). Consistent with our hypothesis, a Pearson Product Moment correlation revealed a positive association between fate-based mentality toward relationship success and attitudes toward infidelity. Importantly, individuals with high neuroticism tend to believe events and outcomes are out of their control, a belief shared with a fate-based view of relationships (Tong, 2010). As such, it seems possible that neuroticism, a known risk factor for romantic relationships, may partially explain the association between relationship beliefs and attitudes toward infidelity. Results from a Sobel test revealed that neuroticism was a significant partial mediator of the association between fate-based beliefs toward relationship success and attitudes toward infidelity. In short, one reason why individuals who hold a fate-based view of relationships are more accepting of infidelity is because these individuals tend to have higher levels of neuroticism.

44. To Take or Not to Take: The Effect of Target Religion and Action Taken on Perceived Morality  
Kasey Polk, Stephanie Valle, Psychology Department  
Sponsor: Dr. Traci Giuliano

The purpose of the current study was to explore the effect of target religion and action in an ethical dilemma on perceptions of target morality. In a 2 x 2 between-subjects design, 65 participants read a fictitious lab assistant application in which the applicant was listed as either Christian or atheist and decided either to take a \$100 bill they found in the library or to turn the money in to the front desk. Then, participants completed a questionnaire concerning their perceptions of the target's morality, honesty, and likeability. We predicted that there would be a main effect for both religion and action taken such that participants would perceive Christian targets and targets that returned the money as more moral than Atheist targets and targets who kept the money. Additionally, we predicted an interaction such that Christian targets who did not take the money would be perceived as more moral than atheist targets who did not take the money, whereas atheist and Christian targets who took the money would be perceived as equally moral. Consistent with predictions, there was a main effect of action taken such that targets who took the money were rated as less moral than targets who returned the money. However, there was no significant main effect of religion on morality and no interaction between religion and action taken on morality. Future research could re-examine perceptions of morality based on target religion using a more conservative and religious sample.

45. Gays of Our Lives: Attitudes Toward Gay Instructors in Gender Stereotypical Activities  
Erika Sells, Kara Shapiro, Psychology Department  
Sponsor: Dr. Traci Giuliano

The purpose of this study was to examine the interaction of sexual orientation of instructor and gender association of activity instructed on participant's perceptions of the instructor. One hundred twenty undergraduate volunteers (50 men, 70 women) were recruited from a small, predominantly White liberal arts university in central Texas. The majority of participants self-identified as White/European-American, but other ethnicities were represented in the sample. Participants read a scenario and a hypothetical email about having a child who was going to participate in either a stereotypically masculine (e.g. football or boxing) or stereotypically feminine (e.g. ballet or volleyball) activity under the instruction of either a heterosexual or homosexual male. After reading the scenario, participants rated their level of comfort with the instructor, the instructor's competence, and the instructor's likeability. We predicted an interaction between male sexual orientation and type of activity, such that participants would be more comfortable with a heterosexual instructor teaching a masculine activity or a homosexual instructor teaching a feminine activity. Contrary to predictions, we found no interaction of instructor sexual orientation and gender association of activity instructed on participants' ratings of the instructor. In addition, we expected participants to rate the heterosexual male instructor more favorably across all dimensions than the homosexual male instructor. However, we found that the homosexual instructor was preferred to the heterosexual instructor overall. These findings may suggest a change in attitudes regarding homosexual individuals.



46. Avoidant Attachment and Neuroticism as a Predictor of Romantic Relationship Frequency  
Rachel Terry, Aimee Blake, Jessica Parada, Psychology Department  
Sponsor: Dr. Erin Crockett

From early parent-child relationships we establish attachment styles; these remain stable and later affect adult romantic relationships (Bowlby, 1969). One type of attachment style, avoidant attachment, results from parents' unresponsiveness to their children's needs. Consequently, later in life individuals with an avoidant attachment are fearful of closeness in romantic relationships and are more likely to transition between relationships as intimacy in those relationships progresses (Mikulincer & Shaver, 2006). However, we suspect that this pattern would not be true for individuals with higher levels of neuroticism. Neuroticism is a personality trait that has negative implications for how someone is able to manage stress (Ozer & Benet-Martinez, 2006). Given that the transition from one relationship to another is a significant stressor (Loving, Gleason, & Pope, 2009), it logically follows that people who have high levels of neuroticism may be less likely to transition between relationships, even if they have an avoidant attachment style. To test this hypothesis, the current study assessed levels of avoidant attachment, neuroticism, and number of past romantic relationships in undergraduate students (N = 139). Results of a multiple regression analysis suggest that avoidant attachment and neuroticism interact to predict the number of relationships an individual develops. Consistent with the hypothesis, individuals who have high levels of avoidant attachment and low neuroticism experience more relationship transitions than individuals who have high levels of avoidant attachment and high levels of neuroticism. In future research, attachment theorists should consider individual difference variables such as personality traits.

47. Extraversion as a Predictor in Mentor-Mentee Relationships  
Estrella Thomas, Elizabeth Anne Stankus, Psychology Department  
Sponsor: Dr. Erin Crockett

A large body of literature suggests that mentors can be important and influential figures in the holistic development of a person. In fact, some mentors can be as influential to an individual's personal development as a parent (MacAuley, 1996). But to what extent does an individual's unique personality contribute to the success of the relationship? It is undeniable that every individual has a unique personality; not all personality traits contribute equally to successful relationships, such as the one between mentor and mentee. Identifying the specific personality traits that impact the mentor-mentee relationship may facilitate improved matching when setting up these relationships. It is believed that mentees who are more extraverted are more likely to perceive their mentor as more supportive, independent of all other personality traits, because past research indicates that high levels of extraversion is associated with increased relationship satisfaction (Scollon & Diener, 2006). To test this idea we assessed mentee personality and perceived mentor support in college students (N = 111). A multiple regression analysis revealed that mentee extraversion was positively correlated with perceived mentor support, even after controlling for all other personality traits (openness, neuroticism, consciousness, agreeableness). Importantly, no other personality trait predicted the quality of a mentor-mentee relationship. In other words, mentees that are more extraverted are more likely to perceive their mentor as more supportive than mentees that are less extraverted. Given the benefits individuals gain from the mentoring

relationship, future research should investigate other factors that predict the success of mentor-mentee relationships.

48. Effects of Equine Assisted Activities and Therapies on Participation and Sleep Among Children with Disabilities  
Stephanie Valle, Sarah McCausland, Vikram Manoranjan, Hillary McDonald,  
Psychology Department  
Sponsor: Dr. Jacqueline Muir-Broaddus

This study was designed to evaluate changes in participation and sleep habits among 26 children with disabilities (R.O.C.K. riders) who participated in 12 weekly equine assisted activities and therapy (EAAT) sessions as compared to 26 typically developing siblings who did not participate in EAAT. The Children's Assessment of Participation and Enjoyment (CAPE) assessed participation in daily activities outside of school, and the Children's Sleep Habit Questionnaire (CSHQ) assessed sleep habits. Questionnaires were completed at weeks 1 and 12. For overall diversity and intensity of participation, diversity of social and skill-based activities, and intensity of recreational, physical, and skill-based activities, CAPE scores decreased over time for the siblings but remained constant for the R.O.C.K. riders. Whereas overall sleep habit scores improved over time for both the R.O.C.K. riders and their siblings, bedtime resistance scores improved only for R.O.C.K. riders with physical disabilities. These results were interpreted in terms of characteristics of the measures, such as the likelihood that CAPE scores vary seasonally and that it takes time for improvements in functioning to translate to measurable increases in participation.

## ORAL PRESENTATIONS

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49. Somebody to Come Home to: Navigating the Human/Non-Human Boundary  
Marianne Lynch, Sociology and Anthropology Department (Anthropology)  
Sponsor: Dr. Melissa Johnson

While "somebody" is a term that generally refers to a human being, a person, it is one that typically excludes the animal other. By conducting interviews and collecting oral histories of about ten seniors and their pets living in Sun City, Texas (a retirement community of 10,000+), I examine how this group of seniors views their relationships to their pets, specifically dogs. Grounding my research in a post humanistic anthropology, I explore how humans navigate the human/non-human animal boundary. While anthropology in part aims to bring a voice to the other, the normative anthropocentric view of what includes that other must shift to include more than just the human body for in doing so, humans can come to a more holistic view of the world in which they inhabit.

50. Beyond Spirit Stories  
Janice Contreras, Sociology and Anthropology Department (Anthropology)  
Sponsor: Dr. Brenda Sendejo

This presentation is a summary of an intergenerational oral history project that took place in Austin over the summer of 2012 in which I served as a student researcher. The project stems from Dr. Brenda Sendejo's ongoing research within the Southwestern Anthropology Program. Specifically, Spirit Stories: Narratives of Spirituality and Social Justice examines how issues related to race, class, gender, spirituality, and religious beliefs inspire involvement in issues of social justice among people who identify as Chicana/o. In particular, Spirit Stories examined the lives of four Mexican American women who were involved in social change movements (such as the Chicano civil rights movement). They were interviewed about their political histories and religious/spiritual paths. The intention of Spirit Stories is to inspire people to be interested in their own "spirit stories" and potentially become involved in social change. I will reflect on how the research experience personally impacted me by exploring themes such as spiritual growth, intellectual growth, and being exposed to new ways of disseminating knowledge. The goal is that this presentation will enhance, expand, and build community learning, knowledge, and awareness of the relationship between social change and spiritual, gender, and cultural identities. The presentation will also explore other experiences that occurred during Spirit Stories. These experiences include: my involvement in the University of Texas Raza Unida Party 40th year reunion oral history project, teaching a Vincente Villa summer program youth workshop, and facilitating family history/college workshops at the Alma de Mujer Center for Social Change children's camp.

51. Forging New Identities: Performance as Conflict Resolution in Northern Ireland  
Carlie Sulpizio, Sociology and Anthropology Department (Anthropology)  
Sponsor: Dr. Melissa Johnson

In Northern Ireland, where there has been a violent conflict between Unionists and Nationalists for more than 400 years, residents today want to create a peaceful society that moves past the conflict but each side retains strong connections to their own traditions. The dilemma facing the Northern Irish is how to acknowledge the past, create a peaceful future, yet still value the contrasting 'Catholic' and 'Protestant' traditions. Performance artists offer possible solutions by suggesting creative ways to cope through their art and by provoking new dialogues about the conflict for change. These artists use symbolic culture as a resource to negotiate the past and configure new identities. This paper examines how different types of performers (theatre productions, musical performance, parades and mural production) are able to directly use art as a 'safe space' to unearth and reconfigure violent histories and political ideologies to generate a new peaceful 'Northern Irish' society, neither fully Protestant nor Catholic. I specifically analyze how artists in Belfast use the space of performance to explore what that new Northern Irish identity might look like, and how each community (Protestant and Catholic) might express themselves in that public space venue. I show how artistic performance can provide a means not only for articulating the tensions, histories and hopes of people living in long-term violent political conflict but also offer possibilities of healing and generating peace.

52. Fear is Contagious: The Impact of the Violence in Juarez, Mexico on El Paso Residents  
Victoria Phillips, Sociology and Anthropology Department (Anthropology)  
Sponsor: Dr. Melissa Johnson

According to CQ Press Crime Rankings, El Paso is the safest city in the country, yet its residents rarely feel safe. The fear El Pasoans experience is a direct result of the city's proximity to Ciudad Juarez. For the past twenty years, Juarez has been plagued by violent crime but in the past five the violence has intensified as a result of Mexican drug cartel activity. The violence in Juarez not only makes El Pasoans feel unsafe, but also changes the dynamics between the cities. Traditionally, residents frequently travel across the border to visit family, go to restaurants, or get medications. With the spike in violence, El Pasoans rarely visit Juarez which affects the relationship between the two-city community. The unique environment and community established on the border of El Paso and Juarez, a critical part of what it means to be an El Pasoan, is diminished by the lack of movement between the cities as a result of the violence. This paper argues that the violence in Juarez has changed the relationship between the two cities, altering what it means to be a resident of El Paso, as well as generating an overall climate of fear in the broader El Paso-Juarez region.

53. Dis-embodiment Knowledge: The Impact of Western Medical Discourse on Female Bedu Healers in Jordan  
Chloe Morris, Sociology and Anthropology Department (Anthropology)  
Sponsor: Dr. Melissa Johnson

In Jordan, the value of traditional medicine is being challenged by hegemonic Western medical discourse, which determines the validity of certain types of medicinal knowledge and practice. As a result, alternative forms of knowledge and practice that do not fit with the ideas of Western medical discourse are often devalued and are in danger of being lost. Western hegemonic medical discourse tends to decontextualize and disembodiment knowledge and identity, in stark contrast to the holistic approach of Bedu (Bedouin) female healers. Ethnographic research and interviews with Bedu female traditional medicinal practitioners in the Northern Badia region of Jordan, conducted in Spring 2012, revealed that these healers engage in a deeply contextual and embodied form of medicinal knowledge that they interpret within the context of their daily lives as women, mothers and Muslims. And yet in urban areas of Jordan, individuals involved in medical and scholarly fields interviewed for this project eagerly subscribe to Western medical discourse and reject the value of these Bedu healers and implicitly, the legitimacy of non-western/scientific forms of knowledge.

54. Fitting into the Ideals of a "New India" after Breast Cancer: Survivor Stories from Mumbai, India  
Fehima Dawy, Sociology and Anthropology Department (Anthropology)  
Sponsor: Dr. Melissa Johnson

Cancer is a growing issue internationally but is still in the early stages of being understood in even the most developed countries. While India is a rapidly developing country working on a pathway to being a global power with an expanding middle class, and scholars and commentators refer to the "New India," the country has not yet fully prioritized public health: indeed only 1% of India's GDP goes towards health. Additionally, this lack of funding is especially detrimental for non-communicable diseases, like cancer, since most attention is focused on communicable disease.

Because of this, many people afflicted with cancer think they have been handed an instant death sentence, while the people who manage to survive are often left in a position of poverty and struggle. For the survivors of breast cancer in India, they deal not only with these issues common to many cancer survivors, but must also maneuver through a gendered disease that affects women's ideas of beauty and femininity, and where they fit into "New India's" expectations of women. Interviews and ethnographic research with survivors that I conducted while working with the NGO, Sanjeevani-Life Beyond Cancer, in Mumbai in Fall 2012 reveal how female breast cancer survivors engage with, and sometimes question, the ideals of the "New India" in terms of beauty, familial roles, class and gender identity.

55. Chilean Intercultural Education and Contentious Identities: Constructions of Sexuality and Gender in the Mapuche Community  
Kristian Lenderman, Sociology and Anthropology Department (Anthropology)  
Sponsor: Dr. Melissa Johnson

In recent years, and largely as a result of indigenous rights' movements, the state of Chile has begun to value the identity and history of the Mapuche, one of the larger indigenous groups in Chile. The state has implemented policies intended to support the reclamation of the Mapuche identity; one of the products of these policies is intercultural education. This educational system incorporates indigenous perspectives and culture into state funded education and focuses on teaching the language and history of the Mapuche in areas of Chile with high concentrations of the Mapuche population. Though this program has appeased some Mapuche organizers, the program unintentionally erases dimensions of Mapuche culture and cosmology that conflict with Western ideologies. These erasures minimize and mask the political and cultural importance of the differences between indigenous and Western and/or Christian constructions of the world. This study focuses on the perception of gender and sexuality as an example of a dimension of Mapuche identity that has been omitted from indigenous education. By only teaching Christian perspectives on gender and sexuality, intercultural education prevents cultural reclamation of sexual histories and the political potential of Mapuche sexual and gender expression. Through participant observation and interviews with Mapuche students, teachers and administrators in Chapod and the nearby high school in Spring 2012, I analyze the ways in which intercultural education depoliticizes Mapuche identity by erasing contentious constructions of sexuality and gender. I conclude with a consideration of how an intercultural educational curriculum could more fully embrace indigenous identities.

56. Mermaids, Mythology and Marble: A Search for Identity  
Emily McWilliams, Sociology and Anthropology Department (Anthropology)  
Sponsor: Dr. Melissa Johnson

This paper is an auto-ethnography of myself as an artist exploring and expressing my identity through the process of creating a marble sculpture that incorporates symbols associated with particular genders and opposing sexualities. Through analysis of this artistic process, I reveal the ways in which discourses of gender and sexuality structure women's (and my own) experiences. I then consider how my experience studying artists in Greece, which included taking a marble carving class, provided me the opening to explore counter hegemonic ideas about gender and sexuality. The sculpture I created is my identity mirrored in marble – and interweaving of two opposing personalities. In my analysis of the production of this sculpture, I use Gloria Anzaldúa's New Mestiza

Consciousness to try to make sense of and chisel away, or deconstruct, the binary and heteronormative logic of gender and sexuality in Western culture.

57. Patterns and Change in the Portrayal of the Elderly in Print Advertising  
Joanna Hawkins, Lucero Castillo, Sociology and Anthropology Department (Sociology)  
Sponsor: Dr. Ed Kain

This study employs content analysis to explore images of aging in advertising. Previous research on print advertising has documented that images of the elderly vary by type of magazine as well as type of product. Further, these images have changed over time. (Ursic et al. 1986; Bramlett-Solomon and Subramanian 1999) This research expands upon the earlier work by exploring the proportion of advertisements that include elderly people. Research questions include: How often are the elderly portrayed in advertising? How has this changed over time? How does this vary by type of magazine, by race/ethnicity, and by gender? The sample for this set of questions examines full-page advertisements, as well as advertisements spanning the length of the page horizontally or vertically, in Time and Ebony from the time period 1935-2005 for Time, and 1955-2005 for Ebony (Ebony was first published in 1945). Advertisements are coded for the presence of human figures, type of product advertised, and the gender and race/ethnicity of human figures in the print ad. Multiple researchers coded a subset of the advertisements to measure inter-coder reliability. Our findings suggest that all three variables of age, race/ethnicity, and gender predict variation in portrayal in print advertising. This is true both in terms of the number/proportion of images, and in terms of the products most likely to use images of the elderly in advertising. Further, there is no clear relationship between the number of elderly people in the population and their portrayal in magazine advertising.

58. Don't Bring It Home: How Emotion Work and Individual Identity Affect Activist Participation  
Anna Fetchick, Sociology and Anthropology Department (Sociology)  
Sponsor: Dr. Maria Lowe

This paper examines how individual identities and emotion work affect the participation in volunteer organizations dealing with violent crime and grief. Drawing from Hochschild (1979) and Brotheridge and Grandey (2002), this paper uses their concept of emotion labor and the Moon and Hur (2011) concept of burnout in relation to participation in a high risk/high cost activist setting (McAdam 1986). Utilizing organizational materials, face-to-face interviews, and participant observation conducted from August to December 2012, the current research finds that previous experiences with the work done by these organizations and a desire to help others are key factors in becoming involved in this type of volunteer work. In addition, the findings suggest that the ability to develop coping mechanisms and engage in emotion work are vital to continued participation within the group. This paper adds to the existing social movement scholarship by examining not only how emotions are used in recruitment through moral shocks, but through appealing to an individual's past experiences. In addition, this paper demonstrates how emotion work can be both racialized and gendered. Finally this paper looks at how emotion work in an environment that actively emphasizes its importance is beneficial in order to prevent participant turnover due to emotional fatigue.

59. "I'm Feeding the World Tonight:" The Impact of Moral Identity Standards on Mobile Loaves and Fishes Homeless Outreach Ministry  
Megan Robinson, Sociology and Anthropology Department (Sociology)  
Sponsor: Dr. Maria Lowe

The purpose of the current study is to examine the motivating factors of volunteers working with a religiously based homeless outreach organization in the South. Specifically, the research examines the extent to which Mobile Loaves & Fishes' (MLF) religious framework influences volunteers' decisions to participate in the mobile food distribution program. An analysis of organizational materials, semi-structured interviews, and participant observation conducted from August to November 2012 suggests that MLF's use of framing conveys a moral identity to volunteers that encourages them to continue their participation in the homeless outreach ministry. This paper adds to the existing social movement literature on faith-based community development organizations (FBCDOs) by examining how religious ideology is used in tandem with elaborated framing and condensing symbols to reflect moral identity standards which induce people to volunteer, and by examining local level limitations of FBCDOs that are unaffiliated with government organizations.

60. Leading Occupy Austin: Constructing an Alternate Conception of Leadership Through Direct Democracy and Collective Action  
Lorenza Cigarroa, Sociology and Anthropology Department  
Sponsor: Dr. Maria Lowe

This study examines the role leadership plays in a non-hierarchical, social justice organization constituted by various working groups. Relevant to the movement literature concerning leadership, this research explores the way in which Occupy Austin sustains its horizontal structure while simultaneously producing leaders that challenge traditional notions of authority. Relying on organizational materials, face-to-face interviews, and participant observation conducted from August to December 2012, this paper finds that Occupy Austin generates a different conception of leaders called "catalysts" in this study, who facilitate actions that contribute to the persistence of the organization by aiding groups to carry out their plans. A unique characteristic of these leaders is that they are loyal to OA's horizontalist principle, as direct democracy practiced in general assemblies plays an important role in monitoring the maintenance of horizontalism. This paper contributes to existing social movement scholarship by analyzing how an activist group creates a space where both leadership and horizontalism are compatible.

61. Friendship, Brotherhood, Sisterhood, and Family: Collective Identity, Social Ties, and Free Space as Motivation for Volunteers at the Ride on Center For Kids  
Caroline Wright, Sociology and Anthropology Department (Sociology)  
Sponsor: Dr. Maria Lowe

The current paper explores the role that identity, social ties, and free space play in the volunteerism at an equine therapy organization in central Texas. Couched in the literature on volunteerism, activism, and social movements, this study examines the ways in which collective identity, social ties, and free space influence volunteers at the Ride On Center For Kids. Using data from participant observation, face-to-face interviews, and organizational materials, the current research finds that for most volunteers, collective identity, social ties, and free space do have an impact on their volunteerism in terms of both becoming and remaining involved in it. The findings

indicate that R.O.C.K.'s collective identity, social ties, and functionality as a free space are motivational factors for volunteers, and thus play an important role in fulfilling the goals of the organization.

62. Performing Spanish: Gatekeeping in a First-Generation Latino Peer Culture  
Isaac Bernal, Sociology and Anthropology Department  
Sponsor: Dr. Sandi Nenga

Spanish proficiency has been a factor in both academic success and a Latino identity. However, there has not been much investigation in how predominantly Latino/a high school students negotiate performances of Spanish during peer interactions. Using participant observation, I examined how predominantly Latino/a students at a summer college preparatory program used Spanish within their peer culture. Performances of Spanish were both continued and terminated by fluent speakers acting as linguistic gatekeepers. While Spanish was used by students of all races, there still existed a tie between Spanish use and the Latino identity, as shown when Latino scholars who were not fluent in Spanish still tried to act as a gatekeeper.

63. They May Be Up to No Good: The Heightened Surveillance of Men of Color on a Predominantly White Neighborhood Listserv  
Alice Nguyen, Sociology and Anthropology Department (Sociology)  
Sponsor: Dr. Maria Lowe

This paper systematically examines the listserv of a predominantly white neighborhood in a large metropolitan area in the South to explore what types of behavior and people are most likely to warrant emails warning neighbors of "suspicious activity." Our theoretical framework combines the literature on white habitus, colorblind racism, and racialized spaces. This theoretical perspective helps to frame the ways in which residents in a predominantly white community use the virtual space of the neighborhood listserv to monitor and protect their physical space from perceived threats. Findings were then placed in larger scholarly works, particularly on the ways racial residential segregation patterns are currently maintained in the United States. And while there is a plethora of scholarship on factors contributing to these contemporary racialized residential patterns, there is no research, known to the authors, exploring the role of neighborhood listservs as a way to maintain certain neighborhoods as predominantly white spaces. Our preliminary findings suggest that Latino and Black men – even when they are doing what seems to be rather ordinary and even expected activities in a neighborhood such as walking, riding a bicycle, and even smiling at people while driving on a neighborhood street – are much more likely to be the focus of neighborhood listserv surveillance than are women in general and white men. Such monitoring practices in the virtual world thus appear to have an impact on the physical space of the neighborhood, helping to maintain this urban neighborhood as a predominantly white space surrounded by communities of color. In sum, it appears that both the listserv and the neighborhood function as racialized spaces with each helping to reproduce the other.



64. Silencing and Celebrating: Professors React to the Personal Experiences of Students of Color  
Susana Contreras, Sociology and Anthropology Department (Sociology)  
Sponsor: Dr. Sandi Nenga

Most initiatives that address the problem of and possible solutions to the Latino Education Crisis focus on aspects outside of the classroom. Culturally responsive teaching which incorporates the lived experiences of students of color may contribute to the educational success of Latino/a students. However, there is little research done on how faculty or professors act in situations where students of color bring their personal experiences into the classroom. Using Critical Race Theory as a framework, I conducted participant observation at a summer college outreach program focused on first-generation, Latino/a high school students during the summers of 2011 and 2012. When students introduced personal experiences within the context of race or racial inequality, professors responded in one of three ways: selective silencing, focusing on the text or lecture, or validating the student's experience. Encouraging and supporting students' personal experiences of race or racial inequality in the classroom may help to validate their perspectives and experiences and lead to an increase Latino/a's graduation rates.

65. Moral Maximization: From Maxim to Context  
Michael Broz, Philosophy Department  
Sponsor: Dr. Lysane Fauvel

Life consists of choices. We are constantly faced with various options and decisions which require us to undertake the painstaking process of choosing what is right. In these choices, we consider the implications of our actions. These implications not only lead us to consider our self-interest, but they also force us to consider how they will affect others. In this presentation, I show how context is a vital factor in the moral deliberation of moral agents. I also show that without considering the context of our action, we are doing an injustice to moral agents. Hence, I propose a new form of maxim that includes the context of a moral situation and shows how this formula is both better suited and more appropriate for our moral deliberation. First, I analyze Kant's work— primarily focusing on how humans have an inherent dignity and show how we can take into account the concrete situation while still honoring this dignity. Second, I use Aristotle to illuminate the essential role of temperance, which requires us to include the perspective of others in our moral deliberation. Finally, I use Adam Smith and John Stuart Mill to argue for a moral system that considers context, but takes into account human dignity.

66. Spatial Analysis of Habitat Change on the Salamanders of Barton Springs  
Emily Pawelek, Brandee Knight, Environmental Studies Interdisciplinary Program  
Sponsor: Mr. M. Anwar Sounny-Slitine

*Eurycea sosorum* and *Eurycea waterlooensis* are both salamander species endemic to the habitats in a cluster of springs along the Balcones Fault Zone, known as Barton Springs. *E. sosorum* is commonly known as the Barton Springs Salamander and *E. waterlooensis* is the Austin Blind Salamander. The springs are a result of water flowing through the Edwards Aquifer. *E. sosorum* is listed as endangered and *E. waterlooensis* is a candidate for endangered status. There are many threats to the species, including habitat loss due to changes in the natural flow of the springs, for either recreational or commercial uses, and increasing withdrawal of groundwater from this segment of the Edwards Aquifer causing changes in the quantity and quality of the water in the springs.

Abundance of these salamanders is varied within the Barton Springs area, as are the habitat sites within the springs. Using data on the species, we have explored correlations between the salamanders' environment and its population numbers using spatial analysis tools.

67. "A Sustainable Austin Is..."

Audrey Calhoun, Katie Campbell, Elise DiNuzzo, Elizabeth Funk, Liliana Galvez, Austin Gentry, Cate Jones, Grady Sampley, Environmental Studies Interdisciplinary Program  
Sponsor: Dr. Joshua Long

This project creates a platform for Austinites to share feedback and offer their perspectives on sustainability within their city. Austin has gained a reputation as a city with an active citizenry who are devoted to environmental protection and activism. Much of the literature on sustainable development and activism identifies community feedback and local definitions of sustainable development as key features of urban sustainability. Following this assertion, this study explores Austinites' perspectives about sustainability issues within their community by reaching out to Austin's citizens and asking them to complete this sentence: "A Sustainable Austin is ...". We provided potential responses with an explanation of the project, as well as contact information about where to send responses. We also used social media outlets in order to receive a diversity of responses. By analyzing participant responses, this project illuminates a better understanding of sustainability in Austin and will hopefully identify key social and environmental concerns in Austin.

68. The Vacuum of National Memory: French Remembrance of World War II from 1943 to the Present

Elise Riggs, History Department  
Sponsor: Dr. Melissa Byrnes

This project examines nine French films released from 1943 to 2010 to further understand the French obsession with its World War II history. In the 1970s when France recognized the occurrence of French collaboration with the Germans during the war, France was confronted with the idea that the history and collective memory of World War II on which the nation had been built for the past twenty-five years was a myth with little truth. With the uniting national myth of Resistance challenged, a vacuum came into existence as collective memory became extinct. For the past forty years, France has attempted to fill the void of this vanquished collective memory with personal memories of subsets of the population that have been exalted as the historical, national memory. In the 2000s, the French turned to the inclusion of forgotten segments of the population in order to re-write the national, historical memory. Yet, no personal memory can be used to encompass all the diverse experiences of World War II, thus creating both a vacuum of national identity and an obsession with finding a memory to guide the nation in the present and the future.

69. Wolfscript: A Programming Language for Android

Erick Bauman, Mathematics and Computer Science Department (Computer Science)  
Sponsor: Dr. Richard Denman

Wolfscript is an educational programming language designed to be easily learned by anyone proficient with a scientific calculator. The key of the language is simplicity joined with the flexibility of other high-level languages. There are only two data types in

Wolfsript so far: numbers and lists of numbers (arrays). Numbers are arbitrary-precision; all numbers are stored as a numerator over a denominator, so all rational numbers can theoretically be represented with no overflow. Strings are represented as arrays of characters, which are stored as numbers. Wolfsript contains all the features one expects from a procedural programming language: if/elseif/else, for/while, and methods. The syntax and IDE are designed for ease of use on any Android phone or tablet. This presentation will cover the design philosophy of the language and the IDE, as well as some of the technical details.

70. Sati as Justification for British Intervention: Processes of Normalization, Representation, and Discourse

Jennifer Juergens, History Department

Sponsor: Dr. David Gaines

Nineteenth century British India was characterized by foreign domination and the ideological struggle between tradition and modernity. The British, in their first act to exert legal dominance over Indian social practice, criminalized the practice of sati in 1829. Sati, the Hindu practice of burning widows on the funeral pyre of their husbands, must be carefully evaluated within the historical context of the rise of British colonial power, because its motivations, representations, and discourse have radically changed throughout time. This paper relies on Foucault and his notions of power as dominance as the foundation of its theoretical approach; however, it seeks to move beyond the ethnocentric mode of ignoring non-Western conceptions of power, especially religious power. I seek to examine the complexity and fluidity of power structures which shape identity and, in particular, I wish to highlight how the female body serves as the embodiment of power dynamics between indigenous and colonial perspectives during this time period. I argue that the most important way in which Britain was able to dominate India was through ideology that emphasized India's difference and perceived inferiority. The British identity relied on the self-identified "higher" qualities of modernity, Christianity, and moral righteousness increasingly throughout the time period 1750-1830 that eventually became dichotomized with India. Through the processes of normalization, representation, and discourse, the British used sati as a catalyst to ultimately justify interference and dominance in India.

71. Rental Housing Discrimination and the Great Recession

Van Pham, Economics and Business Department

Sponsor: Dr. Dirk Early

This study focuses on whether discrimination in rental housing markets was affected and changes brought in by the Great Recession of 2007. Data on rental housing units across metropolitan areas in 2007, 2009, and 2011 are obtained from the U.S. Department of Housing and Urban Development (HUD). The analysis employs hedonic regression to examine the correlation between rental housing price and other independent variables, especially variables capturing the racial and ethnic composition of tenants, together with controls on the attributes of the rental housing unit and neighborhood characteristics. This allows an estimate of the difference in treatment across race and ethnicity for tenants in similar houses and similar neighborhoods. The research suggests whether additional policies are needed to address discrimination in rental housing markets.

72. Nero as Ulixes and Pyrrhus: Twin Aspects of the Destroyer  
Ryan Wicklund, Classics Area  
Sponsor: Dr. Hal Haskell

While Seneca's *Troades* has received relatively little scholarly attention, it remains his most politically charged tragedy. This is hardly surprising, for it likely dates to 64 CE (Bishop, *Seneca's Daggered Stylus*), the year Seneca retired, disgusted with Nero. Because of this, it is quite reasonable to view this tragedy as a coded commentary on Nero. This coded language present in the tragedy was necessary for Seneca, especially given the literary climate (Rudich, *Navigating the Uncertain*). Seneca makes a veiled attack on Nero using two characters, Ulixes and Pyrrhus, the individuals responsible for the destruction of Troy. By making Nero analogous with these two characters and Troy with the Rome under the Augustan method of rule, Seneca argues that Nero is responsible for the destruction of Augustus's Principate. This relationship is cemented by naming Pyrrhus the murderer of Priam. As protector of Troy and thus the Augustan style of government, Priam is comparable to Claudius who was killed to allow Nero's ascension. Similarly, Ulixes kills the son of the protector of Troy, Astyanax, who is likely analogous to Britannicus, murdered to secure Nero's rule (Bishop). Through these comparisons and an accompanying analysis of the lines and actions of these two characters in terms of the historical events, of which Seneca disapproved, and their departure from Neo-Stoic ideals, Seneca's feelings towards Nero and his reign can be deduced.

73. Internships in Psychology  
Angela Klemm, Trey Thiele, Sociology and Anthropology Department (Sociology)  
Sponsor: Dr. Dan Hilliard

This presentation will be an overview of two psychology internship Capstone experiences and the ways in which they helped to shape our education. By working with professionals of Victim Services of the Georgetown Police Department and of The Caring Place Client Advocate Center respectively, we each observed and participated in work that we were then able to link directly to our education in psychology at SU. This presentation will include descriptions of our internship placements as well as discussions regarding the benefits, difficulties, and overall experience of academic internships. Together, we will discuss some of the ways that we were able to draw on our psychology classes at Southwestern and apply concepts directly to the problems we faced in the field. We will also be discussing the importance of the SU capstone internship system, and how crucial the various steps involved are for enhancing the internship experience. Specifically, we kept daily journals, and Dr. Bryan Neighbors oversaw our work through weekly reports. He then provided advice, encouragement, and relevant psychological concepts to consider for application to our daily work. This work then culminated in our eventual writing of a Capstone paper in which we each applied psychological theory and research to our own internship experiences. Through this presentation and discussion regarding Capstone, the organizations we interned for, and our personal experiences, we hope to provide insight into the educational benefits of a well-run academic internship program.

74. Germany, Japan, and the Montreal Protocol  
Kylie LeBlanc, Political Science Department  
Sponsor: Dr. Alisa Gaunder

Though Germany and Japan were both signers of the Montreal Protocol, their positions in international negotiations surrounding the treaty differed greatly. While Germany took a proactive approach towards an international agreement against stratospheric ozone depletion, Japan eventually signed the Montreal Protocol only reluctantly. What explains this difference? Germany and Japan's environmental communities take quite different forms. It was the grassroots green movement of Germany that largely pushed the issue of stratospheric ozone depletion onto the table. In Japan, however, environmental policies are debated within the bureaucracy and therefore no grassroots push took form. The Montreal Protocol is often cited as one of the great international successes for the environment. Ozone depleting substances have largely disappeared and the ozone layer is no longer as urgent a threat. Because of the eventual success of this international agreement, an exploration into the causes of nations' support or hesitancy and of nations' motivations in signing the agreement is useful. If one understands the causes of a nation's support of a previous environmental treaty, we can predict their possible support or hesitancy with a future treaty.

75. The Politics of Dance in Latin America  
Kate Hayden, Political Science Department  
Sponsor: Dr. Eric Selbin

Dance is anything but divorced from politics and the political process. As Jennifer Nevile suggests "whether one is looking at the figure of a dance master, at a prominent aristocratic performer, or at choreographic compositions, it is abundantly clear that the actions and resulting creative outputs are all affected by political considerations and the political process itself". The pedagogy, choreographic style, and music associated with traditions of dance in a country serve as representations of a nation's cultural identity and historical development. While the steps and sequences might be identical across borders, traditions of movement and style are frequently innovated upon and creatively interpreted, much like fundamental assumptions of democracy, or in some cases, authoritarianism. In Latin America, dance is particularly associated with culture and passion, due in part to the impact of language and diverse ethnic groups in the demographics of many countries in the region. This project seeks to utilize dance as a lens to explore a political identity situated within specific cultural and historical contexts. It is a collection of stories from Cuban ballet, dancehalls in Jamaica, the formerly banned tango in Argentina, and the sensuous Brazilian samba. Such an exercise in extended political metaphor will provide a new point of entry for a discourse of contentious politics and the claims people might make on their state, society, and culture(s) given that these discussions centered on dance and artistic expression seem to reflect just as much about revolution, dissent, and development as they do about art.

76. Drawing Boundaries, Drawing Boxes: Female Spaces and Postmodernism at Michigan Womyn's Music Festival  
Kylie LeBlanc, Political Science Department  
Sponsor: Dr. Shannon Mariotti

Through an analysis of Michigan Womyn's Music Festival, this paper explores the following questions: what value is there, if any, in purposefully female spaces? What

critiques can the theory of post-modernism make of these spaces and, in turn, how might the particular value of female spaces inform post-modernism? The post-structuralist critique of the naturalness of sex and gender has been a strong addition to feminist theory, but it has also given rise to a number of questions. At Michigan Womyn's Festival, called the original Womyn's Woodstock, every year, these questions get played out. The creators of MichFest hold that there must be places of refuge for females. This has meant that each year, those who are not 'womyn born womyn' have not been invited to attend the festival. Through qualitative interviews with participants of MichFest and an analysis of post-structuralist thinkers such as Judith Butler and Donna Haraway, this paper explores the relationship between post-structuralism and feminism. At an even broader level, understanding the value of female spaces can speak of the possible value and purpose of identity politics not just within feminism but also in regards to race, class, ethnicity, etc.

77. The Economic Rise of Japan and China: Is China Following in Japan's Footsteps?  
Benjamin Bracher, Political Science Department  
Sponsor: Dr. Alisa Gaunder

Japan and China have both experienced tremendous economic growth in the recent past: Japan's phenomenal growth lasted from about 1960 until about 1990, and China's growth started around 1980 and continues to this day. Despite significant differences in forms of government and the resources available, both countries used state-driven capitalism and export-led growth to develop their economies at a tremendous pace, protecting certain industries and using a positive balance of trade to reinvest in infrastructure and technology. However, Japan's state-driven capitalism created inefficiencies within its economy which eventually led to the economic slow-down of the 1990s, which continues to this day. This paper will attempt to establish an East Asian developmental model and ascertain whether or not this model leads to economic decline through the examination of political, institutional, and economic factors (e.g. examination of industries and broad economic indicators). Case studies of the automobile and electronics industries will help provide concrete examples of how specific policies were enacted by governments and government institutions that affected the development of the Chinese and Japanese economies. This paper concludes that the similarities between Japan and China's economic development make it possible to predict a similar outcome. Specifically, inefficiencies exist within China's economy which will cause its extraordinary growth to slow down as China's economy matures. However, this slowdown will be less drastic than the one seen in Japan due to the more balanced nature of the Chinese economy (which can be at least partially attributed to the different international context in which the Chinese economy has developed).

78. Femicidio and the Latin American Culture  
Daniela Radulovich, International Studies Interdisciplinary Program  
Sponsor: Dr. Eric Selbin

This essay explores the current socio-political issue of femicidio and how it is a product of the still prominent machismo culture in Argentina and other Spanish-speaking countries. In this context, femicidio is defined as the murder of a woman solely due to her gender - in other words it is the killing of a woman who is seen as a disposable object. The contention here is that femicidio is a problem not simply of society but also the state because it is the state's responsibility to protect its citizens and their human rights. This project will draw on the knowledge I gained and research I undertook while

studying abroad and working for a nongovernmental organization in Buenos Aires, Argentina. Additionally, I set this case in a comparative context with Ciudad Juarez, Mexico, the country of Guatemala, and Argentina to discuss their current laws and how these atrocities are a product of the machismo culture which emphasizes a patriarchal unit in the private realm which in turn affects the public sphere.

79. German and Japanese Economic Downturns: How 1990s Changed 2010  
Jesse Chiu, Political Science Department  
Sponsor: Dr. Alisa Gaunder

Germany and Japan suffered economic downturns during the 1990s, with significant long-term consequences and significance to the social, political, and economic structures of both countries. Although both countries share a number of similarities, including their history as losers of World War II and subsequent resurrection to become economic engines of the world, the German economy has now arguably performed stronger than Japan in the past few years. In this paper, attempts will be made to study possible explanations through various angles to explain the divergence in post-millennium economic performance in Germany and Japan. Strong similarities between the two countries undoubtedly exist, for they have gone through western occupations after losing WWII, establishing vibrant liberal democratic institutions with coordinated market economies. However, critical differences, sometimes minor, exist between the Japanese and German socio political structures, and this paper will attempt to study how these differences during the 1990s may have played a role in the variance in modern economic performances of Germany and Japan.

80. Vulnerability Analysis of the Georgetown Salamander (*Eurycea naufragia*) Habitat Using GIS Software  
Kira McEntire, Environmental Studies Interdisciplinary Program  
Sponsor: Dr. Laura Hobgood-Oster

The Georgetown Salamander (*Eurycea naufragia*) is a species of conservation concern primarily due to its limited distribution and vulnerability to habitat loss. This species is permanently aquatic and only lives in springs and caves in central Williamson County, which is one of the fastest growing counties in the country. Spring and stream ecosystems are especially vulnerable to land use changes in the catchment areas of the stream. To look at the potential impacts of land use change on the Georgetown Salamander, I used ESRI ArcMap GIS software and elevation data to model the catchment areas for springs with known populations of salamanders. I then used NDVI and image classification software to look at past and present land use and impervious cover. Impervious cover is commonly used as a measure of urbanization and has been shown to have negative effects on stream health at as little as 10% impervious cover. Of the 13 springs I modeled, 6 have already surpassed this 10% threshold and a few others are in highly modified landscapes. Much is still unknown about the biology of these salamanders, so it is difficult to determine the exact impacts of increasing urbanization, but mitigation of urbanization upstream should be considered to protect the species. Some possible management techniques include upstream catchment ponds or barriers to prevent excess sediment and possible pollutants from entering the stream, minimizing impervious surfaces by using alternative materials, and protection of the springs themselves.

81. Regulation, Education, and the Impact of Student Loans  
Brooke Chatterton, Economics and Business Department (Economics)  
Sponsor: Dr. Emily Northrop

Outstanding student loan debt has ballooned in recent years, reaching over \$1 trillion. This mountain of debt is directly attributable to changes in the regulatory system and government promotion of higher education in the last several decades. The amount of debt has reached unsustainable levels which necessitates systemic changes to the “luxury” model of debt financed education pursued in the United States. Future economic growth and stability may be sacrificed if change is not made.

82. “Cap and Frown”: Student Loan Debt and the Future of Higher Education  
Derrick Dolezal, Economics and Business Department (Economics)  
Sponsor: Dr. Emily Northrop

Is student loan debt the next ‘bubble’ and what does this mean for the future of higher education? In 2012, the total outstanding student loan debt exceeded \$1 trillion. Exacerbated by stagnating employment prospects, the number of students defaulting or delinquent in their payments has increased significantly and students are finding it difficult to repay these loans. In order to better understand the root causes of the crisis, it is necessary to provide an overview of the history and reform of the student loan borrowing system. By examining the public and private sector forces that created excessive inflation and the recent housing bubble, one can examine similar forces that drive inflation in higher education and identify market forces that cause both the higher education and housing market to inflate faster than the normal rate of inflation/CPI. The inflationary increases have created a ‘value gap’ between soaring college tuition rates and the return on investment. In the case of a student loan bubble, prospective students’ loss of confidence will be realized by the potential that a college degree no longer translates into a decent middle-class job upon graduation. Lastly, any possible and feasible solutions to America’s rising tuition and student loan crisis are addressed.

83. Iceland: The Collapse of Wall Street on the Tundra  
Paul Erickson, Economics and Business Department (Economics)  
Sponsor: Dr. Emily Northrop

Much has been made of the collapse of major banking institutions such as Lehman brothers in the wake of the 2007-2008 financial crises. The Troubled Asset Relief Program that followed was signed into law to prevent more institutions from collapsing based on arguments that banks such as Goldman Sachs, Citigroup and Bank of America were “too big to fail.” In the wake of the financial crisis many other nations such as Germany and the United Kingdom followed the United States to bailout their financial institutions. However, Iceland, which had become large market for international banking, chose to allow its collapsing financial institutions to collapse. It is useful to investigate whether or not the Icelandic decision carries with it useful lessons regarding government responses to economic instability. Therefore the purpose of this paper is to ask the question: was Iceland’s response useful in promoting economic health in the Icelandic context? And would it have been as useful in the United States? My conclusions are that Iceland’s decision to let their financial institutions fail perhaps irreparably destroyed their banking industry and allowed enormous savings from Denmark and Great Britain to be lost. However, overall trust in the Icelandic government by the Icelanders remained high and the Icelandic economy quickly recovered to pre-crisis employment and consumption



patterns. As regards the United States it would have much more to suffer as regards international politics and domestic industry and therefore I believe it would not have been useful towards economic health to let its institutions fail.

84. The 40 Hour Workweek  
Marlys McKinney, Economics and Business Department (Economics)  
Sponsor: Dr. Emily Northrop

What is the history and future of the 40 hour workweek? Can examining the history of the workweek provide insight into its future? The idea of the 40 hour work week developed in the western world during the industrial revolution. However, it did not gain widespread support until the Great Depression when many Western countries adopted it as their standard. This suggests that the 40 hour standard developed as a way to share work, which could have implications for the future relationship between working hours and unemployment. Furthermore, a reduced work week could solve more problems than unemployment. A shorter workweek could help temper consumption, environmental degradation, the use of nonrenewable resources, and climate change.

85. Social Security Reform in a Post-Great Recession United States  
Elliot Kelly, Economics and Business Department (Economics)  
Sponsor: Dr. Emily Northrop

With the prospect of the Baby Boomers' imminent retirement and an already enormous national debt, the current structure of the U.S. Social Security system is unlikely to remain sustainable over the next half century. Over the past several decades, much debate has arisen as to the proper means of reforming the Social Security system. This study explains the current state of debate regarding Social Security reform. It will also propose which reform approach provides the best balance of feasibility and effectiveness. In addition to analyzing the current state of the debate, an overview of the history of Social Security in the U.S. will explain how the debate has evolved, including an analysis of President Reagan's 1983 reforms. The debate has largely centered on whether privatizing the system would effectively fix the current pay-as-you-go system. This study will build on previous works, suggesting the proper balance between a system based on personal investment accounts and one funded through the taxation of the current working population. Explaining the consequences of the recent recession that affect the Social Security system is essential to providing the proper approach to reform.

86. Assessing the Impact of Research in Behavioral Economics on Policy-Making  
Kevin Hutzler, Economics and Business Department  
Sponsor: Dr. Emily Northrop

Behavioral economics (BE) is a relatively new and exciting area of research in the economics discipline. BE attempts to understand how individuals actually interact in the market, and contributions to this research area have suggested that several major assumptions of mainstream economic theory are partially (if not totally) wrong. Specifically, we tend to predictably behave in ways that are "irrational," with incomplete information and other contextual pressures that mainstream economic theory disregards. There are obvious theoretical implications for economics as a discipline, but research in BE also provides important practical implications (e.g., policy-making). This paper

assesses how the decisions of policy-makers have been influenced (unintentionally or not) by what we have learned from BE.

87. The Economics of Intellectual Property  
Kynan Murtagh, Economics and Business Department (Economics)  
Sponsor: Dr. Emily Northrop

Intellectual property is something that most people encounter in their day to day and professional lives. It is taken for granted as an important piece of America's social fabric. Intellectual property is held to incentivize innovation, allow artists and companies to profit from intangible desirable contributions to society, and generally enhance the frequency and efficiency of innovation. However, under close scrutiny, these claims prove to be less than warranted. Through a critical economic analysis of different types of intellectual property (most notably patents and copyright holdings) the universal beneficial quality of most types of intellectual property as well as their suitability to the goals they purport, can be thoroughly problematized. Does intellectual property increase innovation, or stifle introduction of beneficial ideas and technology? Are current business models hinging on copyright law distributing goods effectively and ensuring their reproduction, or an insidious form of rent seeking? Somewhat counter-intuitively, it turns out the answers are more problematic for the status quo than previously imagined: intellectual property is not the universally necessary, beneficial, and efficient force it is generally believed to be.

88. Avoiding Disaster: The Future of Financial Bailouts  
Nick Pate, Economics and Business Department (Economics)  
Sponsor: Dr. Emily Northrop

How should we proceed in the future after the recent financial bailouts to avoid having to enact bailouts again? This presentation will explain the damage that bailouts cause to our economy and what the future should look like to avoid the possibility of bailing out firms and institutions.

89. Isolation and Identification of *Pantoea agglomerans*, a Plant and Human Pathogen, in the Southwestern University Fountain  
Patrick Hooper, Biology Department  
Sponsor: Dr. Martin Gonzalez

The ubiquitous nature of bacteria along with their various ecological functions is one of the main reasons identifying bacteria can be important. The identification of bacteria in certain environments can elucidate ways that certain bacteria contribute to certain environments and their acute causes. The purpose of this study was to isolate and identify an unknown bacteria from the somewhere on the Southwestern University campus. An unknown was isolated from the university fountain and was found to be in the family *Enterobacteriaceae* through 16S rRNA sequencing. Using various biochemical tests, the unknown organism was identified as *Pantoea agglomerans*. *P. agglomerans* is a small, gram-negative bacilli that has been commonly associated as both an epiphyte and endophyte of various plant species. *P. agglomerans* has been linked to enhancing plant growth via biocontrol of other pathogenic bacteria but has also been found to be a pathogen in some plants, including cotton, olive trees, and some types of commercial flower cultivars. In addition, *P. agglomerans* has been found to be a human pathogen in instances involving penetration by plant material, usually resulting in septic arthritis. The identification of *P. agglomerans* on the Southwestern campus could bring light to the fact

that these plant-associated bacteria can cause infection in humans if contact occurs. Outside the Southwestern sphere, *P. agglomerans* presence can prove to have agricultural impacts, both negative and positive.

90. Distractions Can Be a Real Pain  
Ben Cardiff, Mathematics and Computer Science Department  
Sponsor: Dr. Therese Shelton

Today's society is full of phones, portable gaming systems, and other gadgets that steal our attention while driving, which may lead to serious injury or death. We examine data of motor vehicle accidents caused by distracted drivers and predict the number of accidents that may occur in upcoming years, based on increasing device use.

91. Plastic Recycling Under a Mathematical Lens  
Yvette Niyomugaba, Mathematics and Computer Science Department  
Sponsor: Dr. Therese Shelton

As the world population increases significantly, recycling is one of the effective ways to conserve energy and natural resources. In addition, recycling reduces landfill use and the environmental damage from pollutants and greenhouse gas emissions. Plastic is one of the most consumed products worldwide, and this research will focus on modeling plastic recycling and landfill usage in Bangladesh and the United States. We develop a Markov chain model in which state diagrams show the flow of plastic in a recycling system. Linear, exponential, and logistic functions are used to describe the amount of plastic at different stages, including virgin plastic and landfill. In addition, the relationship between landfill growth and plastic consumption are modeled using various mathematical procedures.

92. Math Asks: "Water You Doing, Georgetown?"  
Van Pham, Mathematics and Computer Science Department  
Sponsor: Dr. Therese Shelton

We will present an original model of water demand and its relation to temperature and rainfall in Georgetown, Texas. Data is obtained from a variety of sources. Our model estimates the amount of water use for irrigation in this area.

93. Nocturnal or Diurnal? Day and Night Activity Patterns of the Georgetown Salamander (*Eurycea naufragia*)  
Kira McEntire, Biology Department  
Sponsor: Dr. Benjamin Pierce

Most salamanders are nocturnal, yet few studies have examined the effect of nocturnal/diurnal activity patterns on sampling and none on permanently aquatic salamanders. In this study, we examined numbers of individuals detected in diurnal and nocturnal surveys of the Georgetown salamander, *Eurycea naufragia*, and an endemic spring- and cave-dwelling salamander known from only about 15 sites in central Texas. Once a week for 7 weeks, we placed 3 funnel traps into a permanent spring for two 12-hour time periods: one diurnal sample (0700 hr to 1900 hr) and one nocturnal sample (1900 hr to 0700 hr). The order of diurnal and nocturnal samples was randomized. We captured significantly more salamanders in the nocturnal surveys ( $P = 0.008$ ). There was no significant difference in the number of adult salamanders captured during the two

time periods ( $P = 0.881$ ); the difference we observed was entirely due to an increased number of juvenile salamanders captured at night ( $P = 0.003$ ). Our results suggest that juvenile Georgetown Salamanders are more active at night. We recommend that researchers surveying for the presence of salamanders in a spring consider using overnight traps. Additionally, researchers investigating larval salamanders should be aware of increased juvenile activity at night and adjust the timing of surveys accordingly.

94. Double Trouble for Local Salamanders: Substrate and Food Availability for Two Populations of the Endangered Georgetown Salamander, *Eurycea naufragi*  
Jonathan Miley, Biology Department  
Sponsor: Dr. Romi Burks

Particularly sensitive to urbanization, freshwater ecosystems often support organisms that exhibit little tolerance for changes to their habitats. Land use managers must carefully consider effects of development on sensitive watersheds. The Georgetown salamander, *Eurycea naufragia*, only occurs in Williamson County, TX, and recently qualified for consideration as a federally endangered species. Our study investigated freshwater springs (Twin Springs and Swinbank Spring) housing the largest known populations of *E. naufragia*. Over a one year period, we took monthly samples of the abundance and taxa richness of macro invertebrates and meiofauna from multiple microhabitats (water surface, hard substrate and sediment) within each spring. In addition to quantifying macro invertebrates, we characterized each spring in terms of the amount and type of substrate (gravel, cobble, boulders, silt, sand and woody debris) found throughout the reach. Overall, we found no significant differences between the two springs in abundance or taxa richness of macro invertebrates although seasonal trends occurred. Both springs displayed greater abundance during warmer months. While amphipods, chironomids, caddisflies, and damselflies persisted at both sites, mayflies only occurred at Twin Springs. Cobble comprised over 30% of the substrate present at both springs with the remainder being large rocks, sticks & twigs of various sizes and leaf litter sometimes covering the larger substrate. Twin Springs contained greater amounts of silt than Swinbank Spring, as evidenced by deeper pools. Our work provides critical baseline data for springs holding a critically endangered species and suggests the need for continued monitoring as silt accumulation negatively impacts aquatic life.

95. The Apple Doesn't Fall Far From the Tree: Reproductive Characterization of the Newly Renamed Apple Snail, *Pomacea megastoma*  
Allyson Plantz, Biology Department  
Sponsor: Dr. Romi Burks

Exotic, invasive species pose considerable threats to freshwater systems worldwide. The family Ampullariidae, a group of amphibious snails, includes some of the most invasive freshwater mollusks globally. Fecundity of two species within the genus *Pomacea*: *P. canaliculata* and *P. maculata*, (formerly *P. insularum*) accounts for the extensive distribution of Ampullarids in the United States and Asia. Comprehensive taxonomic revision (specifically Hayes et al. 2012) recently contributed another species, *P. megastoma*, (formerly *Pomella megastoma*) to *Pomacea*. The small amount of published literature and noted invasive success of *P. canaliculata* and *P. maculata* spurred a reproductive assessment of ecologically similar *P. megastoma*. During December-January 2011, we conducted a comparative reproductive assessment of *P. megastoma* in its native region along the western boundary of Uruguay. We collected clutches from *P. megastoma*, *P. canaliculata* and *P. maculata* (43, 42 and 27

respectively), measured basic clutch characteristics (length, width, depth, and mass) and quantified fecundity using number and size of eggs. We combined this survey with past collections in Uruguay to form a more extensive native geographical distribution for this species. Our collections revealed that females of *P. megastoma* produced clutches with the greatest width, depth, mass and egg size compared to *P. canaliculata* and *P. maculata*. These findings demonstrate that reproductive potential of *P. megastoma* may reflect fecundity of related species. Given the unknown potential of this species to enter the aquarium or aquaculture trade, future research needs to quantify hatching efficiency and tolerance of *P. megastoma* to various abiotic factors.

96. Isolation and Identification of Genus *Pseudomonas* from Ruter Shower Floor  
Blair Quattrochi, Biology Department  
Sponsor: Dr. Martin Gonzalez

*Pseudomonas* is ubiquitous in nature, genetically diverse, and performs a variety of functions including human and plant pathogens, biocontrol, and degrading chemical wastes. *Pseudomonas* have critical roles in the environment. Since there is such a large range of species of *Pseudomonas*, classification of this genus is often complicated and has recently undergone taxonomic revisions. Due to the various functions of species within the *Pseudomonas* genus, the process of identifying unknown microorganisms is important. In this experiment, an unknown organism was isolated from a community shower floor at Southwestern University. The unknown DNA was amplified by PCR, which targeted the 16S rRNA gene, purified, and sequenced. To further characterize the unknown microorganism, staining and biochemical tests were performed. The sequence was compared to a nucleotide database, which further distinguished the microbe. The results produced from the nucleotide database indicated that the unknown microorganism belongs to the genus *Pseudomonas*. The results of the biochemical tests did not match up with many of the results for most of the possible species of *Pseudomonas* that were indicated by the results from the nucleotide database. *Pseudomonas* species are difficult to differentiate due to the vast span of species. The environmental isolate collected for this experiment probably underwent horizontal gene transfer and mutations resulting in the loss of flagella and other functions. Therefore, the unknown was identified at the genus level. There are many ecological and economic implications associated with *Pseudomonas* species that demonstrate the importance of being able to identify microorganisms in particular environments.



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Indicate the category that most accurately reflects your status:

( ) Faculty    ( ) Staff    ( ) Student    ( ) Community Resident    ( ) Other \_\_\_\_\_

	Strongly Agree	Agree	Disagree	Strongly Disagree
<b>SYMPOSIUM</b>				
Event was well organized	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Support staff was welcoming and helpful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Time allotted to each presentation was appropriate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall rating of the event was good	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>PRESENTATIONS</b>				
Presenters were informative and knowledgeable about their subject	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Presenters were well prepared	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quality of presentations were professional	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>LOGISTICS</b>				
Advance information about the event was adequate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Symposium website contained useful information and was easy to use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Food provided was enjoyable and adequate for the event	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Facility space for presentations were adequate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How did you hear about the Symposium?

What did you like most of the Symposium?

What are your suggestions for improving the Symposium?

Please provide any additional comments.

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