

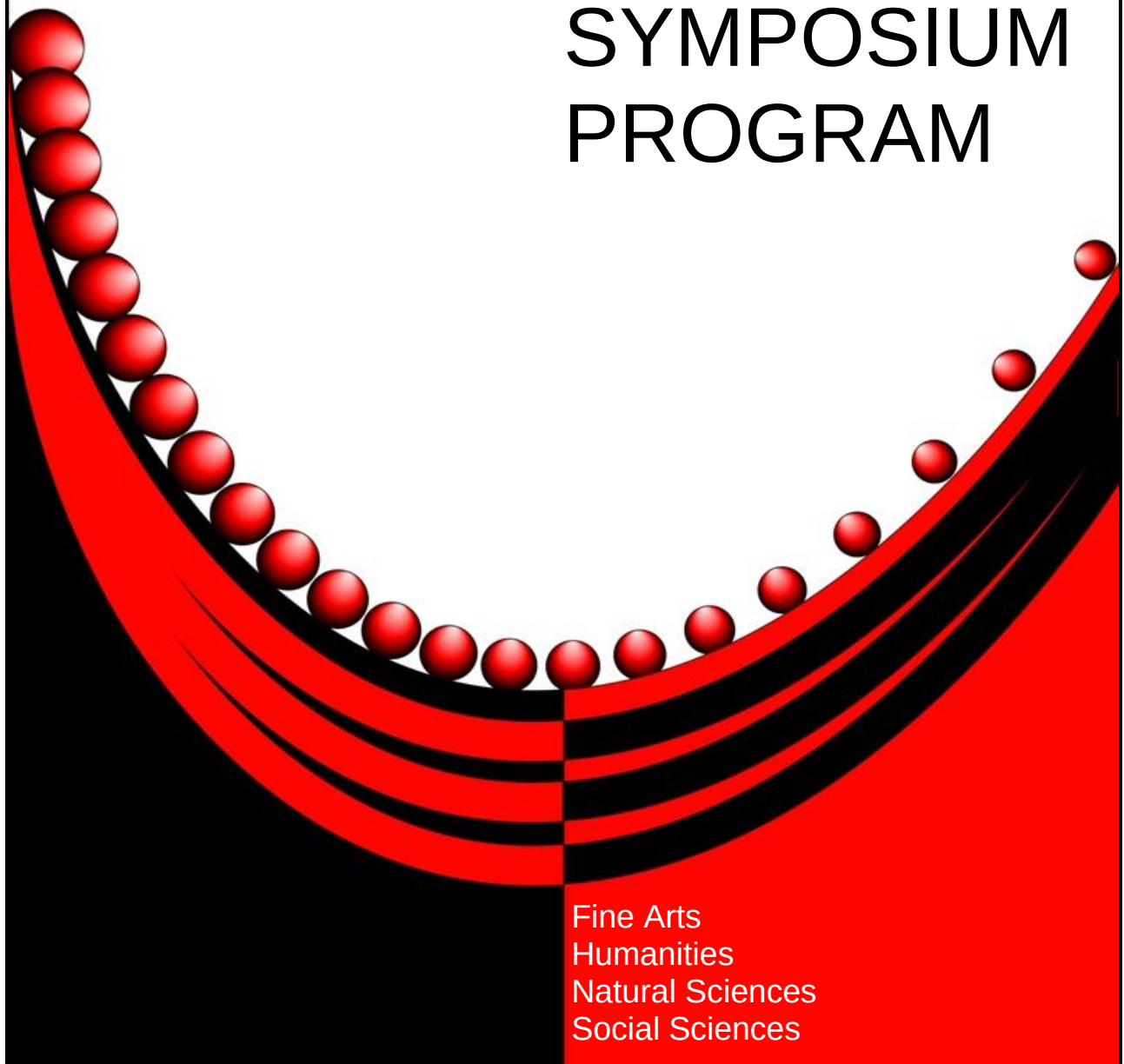
Southwestern University's Twelfth Annual

FROM EVERY VOICE

A STUDENT WORKS SYMPOSIUM

March 28, 2011

SYMPOSIUM PROGRAM



March 28, 2011

Members of the Southwestern and Georgetown Community,

It is my great pleasure to welcome you to the twelfth annual Student Works Symposium: From Every Voice.

In the past years, the Symposium has provided students with an opportunity to showcase their research and creative works. It serves as a physical display of the breadth and depth of the liberal arts education that students receive at Southwestern. Furthermore, the Symposium allows students to utilize classroom knowledge by applying it to real world issues.

This year, the symposium will showcase 114 presentations featuring the works of 130 students from 25 disciplines. The diversity of presentations will provide an opportunity for everyone to engage in conversations on thought-provoking topics, to question our own perspectives, and to see the world from a multi-faceted view.

Your attendance is greatly appreciated. The annual symposium is part of Southwestern's ongoing efforts to provide a forum for scholarly interchange. It is my hope that you will leave the symposium having learned something new and with a new perspective on the world.

Sincerely,

Rebecca Eisenberg
Class of 2012
Program Chair
Student Works Symposium: From Every Voice

2011 STUDENT WORKS SYMPOSIUM: FROM EVERY VOICE

Southwestern University
Georgetown, Texas

PROGRAM CHAIR

Rebecca Eisenberg, Psychology and English Major
Class of 2012
Southwestern University

Special Thanks To:

Student Activities and Community Chest
The Paideia Program
Office of the Provost

SYMPOSIUM SCHEDULE AT A GLANCE

11:00-4:00 Registration for Presenters

5:00–6:00 Oral Presentations in the Red McCombs Campus Center Ballrooms, Roy B. Shilling, Jr. Room, Margaret Shilling Room, Dan Rather Room, and the Merzbach Room

6:00 Introductory Remarks: Rebecca Eisenberg, Program Chair
Welcoming Remarks: Jim Hunt, Provost and Dean of the Faculty

61. Performance by Audrey A. Olena
The Well-Tempered Angklung: The Instrument and Western Scales

62. Performance by Jasmine SayGan
A Journey in Music: A Developmental Timeline of a Songwriter

6:15- 7:00 Creative Works and Exhibitions in the Sarofim School of Fine Arts
Jim and Pat Walzel Lobby
Refreshments served

6:45–7:45 Poster Presentations, Creative Works and Exhibitions in the
Red McCombs Campus Center Bishops Lounge
Refreshments served

7:45–9:00 Continuation of Oral Presentations in the Red McCombs Campus Center
Ballrooms, Roy B. Shilling Jr. Room, Margaret Shilling Room, Dan Rather
Room, and the Merzbach Room

TABLE OF CONTENTS

PROGRAM CHAIR	1
SYMPOSIUM SCHEDULE AT A GLANCE.....	2
TABLE OF CONTENTS	3
PROGRAM AGENDA.....	4
ORAL PRESENTATIONS.....	9
CREATIVE WORKS AND EXHIBITIONS IN THE BISHOP LOUNGE	29
CREATIVE WORKS AND EXHIBITIONS IN THE JIM AND PAT WALZEL LOBBY	33
POSTER PRESENTATIONS	37
INDEX OF AUTHORS	55
DISCIPLINE INDEX.....	56
NOTES.....	57
EVALUATION FORM	59

PROGRAM AGENDA

ORAL PRESENTATIONS

Lynda McCombs Ballroom

- 5:00 1. Hands on Approach
Inkah Brown
- 5:15 2. Math and Science Education in Africa
Molly Deshaies
- 5:30 3. The Importance of Writing in Science
Jena Niehus
- 5:45 4. Keep Austin Kiltured: The Art of Revitalization and Gentrification in East Austin
Laura Romer

Marsha Shields Ballroom

- 5:00 5. Acoustic Preference for World Music in Chimpanzees
Morgan Mingle
- 5:15 6. Attitudes Toward Creativity in Artificial Intelligences: Interactions Between Humans and Artificial Intelligences
Matthew Daughtry
- 5:30 7. Maternal Disciplinary Behavior of a Captive Bottlenose Dolphin (*Tursiops Truncatus*) Mother-Infant Pair in Relation to Wild Bottlenose Dolphin Maternal Behavior
Stephanie Henderson
- 5:45 8. Chimpanzee See; Chimpanzee Do: A Study of Social Learning and Handedness
Morgan Mingle

Connie McNab Ballroom

- 5:00 9. The Incredible, Edible Egg: Predation of Apple Snail (*Pomacea Insularum*) Eggs by a Native Riparian Predator, the Red-Eared Slider (*Trachemys Scripta Elegans*)
Allyson Plantz
- 5:15 10. Disturbing Environments: Nutrient Enrichment Negatively Impacts Water Stressed *Pomacea Insularum* Hatchlings
Megan Rice
- 5:30 11. Population Size and Movement of the Georgetown Salamander (*Eurycea Naufragia*)
Ashley Wall, Kira McEntire
- 5:45 12. The Effect of Climate Change on Fishery Production in the Gulf of Mexico
Nneka Maduka

Merzbach Room

- 5:15 13. Interracial Desire in The Confessions of Nat Turner and Dessa Rose
Rachel Coley
- 5:30 14. Shakespeare Out of the Box: A Midsummer Night's Dream
Andrea Neal
- 5:45 15. Howling Coyote: The Trickster in Ginsberg
Katherine Mead

Margaret Shilling Room

- 5:00 16. Patient-Centered Medical Homes as Innovative and Viable Health Care Reform
Cody Smith
- 5:15 17. Education Narrows the Income Gap Between African Americans and Whites
Maggie Bishop
- 5:30 18. Global Imbalances and the Financial Crisis
Nicholas Pierce
- 5:45 19. Regulating the Payday Loan Industry
Blake Bissing

Roy B. Shilling, Jr. Room

- 5:00 20. Government Sponsored Capitalism: A Look Into Government Sponsored Enterprises
Brendin James
- 5:15 21. Private Savings: Why Standard Theory May Be Wrong
Matt Wladyka
- 5:30 22. Gender Wage Discrimination Among College Graduates
Ann Alston
- 5:45 23. Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010: An Empty Promise
Cody Smith

Dan Rather Room

- 5:00 24. Legends and Darkness: Terrorism in German Film
Sean Stumpf
- 5:15 25. Freud y los Porteños: Observing the Influence of Psychoanalysis on Argentine Film
Brady Granger
- 5:30 26. Le Dévoilement de la Relation Entre L'islam et la Laïcité: The Unveiling of the Relationship Between Islam and French Secularism
Lauren Glass

INTRODUCTORY AND WELCOMING**Bishops Lounge**

- 6:00 Introductory remarks by Program Chair Rebecca Eisenberg
Welcoming remarks by Provost Jim Hunt

CREATIVE WORKS AND EXHIBITIONS**Bishops Lounge**

- 6:00 55. Color Theory of the Experience of Painting for Artists and Audiences with Visual Impairments
Jessica Espinoza
56. The Arts Festival
Natalie Phillips-Perkoff, Anne Fenley
57. The Electric Cello
Will Hardy, Natalie Phillips-Perkoff

58. Automated Microorganism Detector
Will Hardy, Mason Cradit, Marisol Frausto-Martinez, Jessilyn Massey, Heather Petty, Steven Solis, Tran Le
59. The Wall of Juarez: Expressions of Violence Against Women
Kristi Lenderman, Alejandra Benitez, Lizette Villarreal, Celia Campos, Francisca Lopez, Audrey Loukota, Eli Sreniawski, Alyssa Granado, Diana Wakasugi
60. Sustainability in the Theater
Kira McEntire
61. The Well-Tempered Angklung: Thai Instrument and Western Scales
Audrey A. Olena
62. A Journey in Music: A Developmental Timeline of a Songwriter
Jasmine SayGan
63. The Ugly and the Beautiful- Exhibition of Sculptural Art at Texas Sculpture Symposium
Lauraly Hernandez

Walzel Lobby

- 6:15
64. Through the Webs of Haussman
Christine Harris
 65. Rags III
Christine Harris
 66. Succulent Concoctions
Jenna Foster
 67. Untitled: Still Life and Forty Hours Later
Hannah Adams
 68. Skinned Knees and Cows on Parade
Morgan Bailey
 69. Sea World San Antonio, June '95
Kirby Crone
 70. Growth of Pathological Pear Tree
Rebecca De Los Santos
 71. Phlegmatic (at left, part of The Four Humors Suite)
Mary Scoville
 72. Filled Emptiness
Rachel Sellars

POSTER PRESENTATIONS

Bishops Lounge

6:45 Poster Presentations (73-114)

ORAL PRESENTATIONS (cont')

Lynda McCombs Ballroom

- 7:45
27. English Language Learning in Elementary Science Classrooms
Kim Sump
- 8:00
28. Teaching English Language Learners Science
Nekia Harps

- 8:15 29. Environmentalism and U.S. Climate Change Policy: When and Why it Fails
Cameron Holland
- 8:30 30. Working Without Bosses: The Political Implications of the Workers Movement at
FaSinPat
Benjamin Atkins

Marsha Shields Ballroom

- 7:45 31. Creator-God or Prime Mover: Thomistic and Aristotelian Metaphysics
Andrew Waller
- 8:00 32. Demosthenes and the Great Man in "Against Conon"
Donald Frye
- 8:15 33. We Will Provide, Women Decide: The Ecuadorian Movement for the Legalization of
Abortion and Ordinary Democracy
Amanda Doenges
- 8:30 34. Domestic Border Struggles: The Adoptive Family as a Borderland
Matthew Kamas

Connie McNab Ballroom

- 7:45 35. "We'll Do the Best We Can": How Volunteers Overcome Frustrations to Stay
Motivated and Involved in the Animal Welfare Movement
Alex Brown
- 8:00 36. "Welcome to Hell": The Role of Framing and Recruitment in Saving Souls
Toni Nietfeld
- 8:15 37. Math Anxiety in Elementary and Secondary School Students
Mi Hyang Baik
- 8:30 38. Implementing Ruppert's Algorithm for Smooth Curves in 2D
Matthew Flatau

Merzbach Room

- 7:45 39. The Queering (or Not) of Latin America Through Same-Sex Marriage Legislation
Juan Juarez
- 8:00 40. Concentrated Animal Feeding Operations: Why They Exist and Why They Should
Not
Abbey Benold
- 8:15 41. Corporate Personhood
Rachel Freeman
- 8:30 42. Locke and Liberalism at the Founding
Rebecca Lester

Margaret Shilling Room

- 7:45 43. CEO Pay
Shaun Cooper
- 8:00 44. If It Doesn't Make Dollars, Does It Make Sense? A Review of Neuroeconomics
Addison English
- 8:15 45. Decreased Lending Standards During the Housing Bubble and the Exploitation of
Minorities
Ben Feiler
- 8:30 46. Are Consumers Really Rational?
Tim Hord

Roy B. Shilling, Jr. Room

- 7:45 47. Are You Smarter than a 5th Grader?: An Econometric Study of the Determinants of
5th Grade Math Scores
Maggie Bishop
- 8:00 48. Determinants of Baseball Pitcher Salaries
Jenna Mossbarger
- 8:15 49. Argentine Student Activism and the Media in the 1960's
Perri Pyle
- 8:30 50. Voice of the People, Voice of God: Paul Kruger and Afrikaner Republicanism
Andrew Waller

Dan Rather Room

- 7:45 51. The Nose: Shostakovich's Revolutionary Soviet Opera, Rejected by the
Revolutionary Soviet Regime
Benjamin Bracher
- 8:00 52. Eve Beglarian and "The bus driver didn't change his mind" in a Social and Musical
Context
Catherine Klassen
- 8:15 53. Viktor Ullmann's Mission for Freedom
Sara Watson
- 8:30 54. Production Stage Management
Cathrin Winsor

ORAL PRESENTATIONS

1. Hands on Approach
Inkah Brown, Education Department
Sponsor: Dr. Michael Kamen

Texas is facing major drops in the educational promise of its students in Science. This is in short due to “High Stakes Testing.” Because of these tests, teachers are forced to cram the science curriculum into students’ minds in order to pass the state’s tests that determine whether or not students graduate. There have been many theories on what type of pedagogy is the best way to help Texas’s students to better understand science. Through examining literature based on this dilemma and interviews with educators it becomes obvious that the best pedagogy for students to excel at science is through hands-on activities that help build on previous knowledge and connects to larger concepts.

2. Math and Science Education in Africa
Molly Deshaies, Education Department
Sponsor: Dr. Michael Kamen

Education is a foundation of opportunity for children all throughout the world. However, there are many different approaches to education, many different theories on education and many different aspects of life that affect education. Education in the United States is often compared to education in other, often European or Asian countries such as Singapore, England, China and Finland. The fact that these are all developed areas makes the comparison more about test scores and passing rates amongst students. I am interested in comparing United States education with the education in a vastly different region, Africa. It is apparent that many factors that influence education in an area are cultural, economic, and social in nature. Since the majority of Africa varies greatly from the United States in at least one of these aspects, I will look into how these differences affect education. That is, I will explore the ways in which math and science education in Africa differs from math and science education in the United States, and I will look for some of the possible causes for this difference.

3. The Importance of Writing in Science
Jena Niehus, Education Department
Sponsor: Dr. Michael Kamen

This project explores the use of writing in the science classroom. While writing has an assumed presence in language arts, that same assumption is not made for it in the case of science. This project seeks to explore the reasons as to why writing is not included. In addition, the main goal of this project is to explain the importance of writing and the value it can bring into classes other than language arts, and particularly science. In order to understand and to truly learn to process, science students need to be given the opportunity to develop and expand their ideas of the content. One very important way this can be accomplished is by using writing as a tool. The limits of its use in the science classroom are very broad, as it can be applied to strengthening the foundational knowledge of many scientific concepts. Allowing students to use their words to process what it is they are learning can help develop their understandings, and can also be a very useful tool for the teacher in terms of assessing student comprehension of the content. I seek to explore the many ways writing can be a foundational tool within the science curriculum.

4. Keep Austin Kultured: The Art of Revitalization and Gentrification in East Austin
Laura Romer, Education Department
Sponsor: Dr. Stephen Marble

To provide background information on my interest, I interned over the summer of 2010 with the Austin Creative Alliance, an organization with the goal to bring the arts to the community of Austin. The office is located in East Austin, an area with great racial diversity and low-income families. The organization focuses on the entire city of Austin, but its physical location is a direct result of the city's attempt to help revitalize East Austin. In this paper, I focus on the ideas of gentrification and revitalization, and the role of the arts in East Austin. Through incorporating interviews from members of the Austin community, I critically explore the issues of race and class, as well as the dynamics between power, ideology, and agency developing within our very own local neighborhoods.

5. Acoustic Preference for World Music in Chimpanzees
Morgan Mingle, Animal Behavior Program
Sponsor: Dr. Steven Schapiro

All primates have an innate ability to distinguish between temporal and melodic features of music; however, unlike humans, non-human primates have demonstrated a preference for silence over western music in previous studies. Because western music is acoustically different from music of other cultures, this preference cannot be generalized to music as a whole. The purpose of the present study is to determine the spontaneous preference of common chimpanzees (*Pan troglodytes*) for three acoustically contrasting types of world music: West African akan, North Indian raga, and Japanese taiko. Sixteen chimpanzees housed in two groups were exposed to 40 minutes of music from a speaker placed 5 feet outside the fence of their outdoor enclosure; the proximity of each subject to the acoustic stimulus was recorded every two minutes. When compared to controls, subjects spent significantly more time in areas where the acoustic stimuli were loudest in African and Indian music conditions. Additionally, subjects spent significantly less time in areas furthest from the music in the Indian condition. This preference for African and Indian music could potentially identify acoustic characteristics that are of biological importance to both humans and other primates and, therefore, point toward potential evolutionary pressures for music development.

6. Attitudes Toward Creativity in Artificial Intelligences: Interactions Between Humans and Artificial Intelligences
Matthew Daughtry, Psychology Department
Sponsor: Dr. Jacquie Muir-Broadus

Anecdotal evidence suggests that people will like music less simply because it was composed by a computer program (Cope, 1999). Indeed, despite evidence that people interact with computers in a social manner, several researchers have suggested that when computers become too life-like, such as the fictional HAL 9000, people will dislike them. The present study hypothesized that participants would respond negatively to a computer that displayed human-like characteristics, such as creativity, by giving lower ratings to works supposedly authored by a computer. Thirty-seven college students listened to two samples of music, one composed by a person and the other by a computer. Half of the participants were told both samples were composed by a person, and the other half of the participants were told both samples were composed by a computer. Participants rated the music using the Consensual Assessment Technique (Amabile, 1982). Results did not support the hypothesis that participants would rate music they were told was composed by a computer as less creative and like it less than music they were told was composed by a person; when asked directly, however, participants indicated that they would, in fact, give lower ratings to

computer-composed music. Future research should consider utilizing within-groups design rather than between-groups design. Giving participants the ability to rate one sample of music would provide an anchoring point which they would likely use to adjust their ratings of the second piece; this should lead to better understanding of people's assessment of creative works authored by computers.

7. Maternal Disciplinary Behavior of a Captive Bottlenose Dolphin (*Tursiops Truncatus*) Mother-Infant Pair in Relation to Wild Bottlenose Dolphin Maternal Behavior
Stephanie Henderson, Animal Behavior Program
Sponsor: Dr. Jesse Purdy

A dolphin calf's survival is dependent on its mother's maternal strategies. These strategies may be affected by the environmental constraints of captive facilities like aquaria and amusement parks. However, few studies have made direct comparisons between captive and wild dolphin behaviors. To address this, this study examines disciplinary behaviors and vocalizations of a captive bottlenose dolphin mother-infant pair and compares them to previous studies of wild bottlenose dolphin maternal behavior. A focal animal sampling technique was used to record vocalizations (hydrophone array) and concurrent non-vocal behaviors (6 underwater cameras) of an inshore bottlenose dolphin mother-infant pair between December 2009 and February 2010. Results are considered in light of the differences found between the disciplinary behaviors of a mother-infant pair in captivity versus the published accounts of mother-infant pairs in the wild. Dolphins have complex social, emotional, and cognitive abilities; thus by understanding the effects of captivity on their maternal strategies we can better the welfare of these animals.

8. Chimpanzee See; Chimpanzee Do: A Study of Social Learning and Handedness
Morgan Mingle, Animal Behavior Program
Sponsor: Dr. Steven Schapiro

The current experiment was designed to assess two aspects of primate evolution and cognition: brain lateralization and social learning. Sixty adult chimpanzees living in 7 multi-male, multi-female social groups were each given a two-chambered device to open after observing a "teacher" complete the task. The device consisted of a 10" length of 1" white Polyvinyl chloride (PVC) pipe separated into two reward compartments by a bolt. Each compartment could be accessed independently: one side was fitted with a male PVC twist cap adapter and a white PVC twist cap; whereas the other compartment was closed with a 1" grey or black PVC pull cap. A low-value reward was placed in one chamber and a high-value reward was placed in the other. The "teacher" for each social group was chosen based on relative dominance and perceived aptitude for the task and received the apparatus first. Only the teacher was given the apparatus until an effective strategy to remove the food items was developed. After observing a successful opening strategy at least three times, another chimpanzee was given the opportunity to open a device. The method of opening the apparatus, the hand used for each task, and the individuals observing the teacher were all recorded. Overall, chimpanzees are expected to favor opening strategies they have seen other chimpanzees use successfully. Furthermore, it would be interesting to note whether the same side of the brain was used to complete gross motor tasks, such as hitting, as for fine motor tasks, such as twisting a cap.

9. The Incredible, Edible Egg: Predation of Apple Snail (*Pomacea insularum*) Eggs by a Native Riparian Predator, the Red-Eared Slider (*Trachemys scripta elegans*)
Allyson Plantz, Biology Department
Sponsor: Dr. Romi Burks

Riparian predators, species which occupy unique positions in both aquatic and terrestrial food webs, rely upon aquatic invertebrates as a main source of energy. The egg stage of development, when the organism remains in its most vulnerable state, occurs beneath the water for most prey species. The aquatic environment protects the eggs from many abiotic stresses such as oxidative damage and limits exposure to many riparian predators. However, the recent introduction of an aquatic prey species, *Pomacea insularum*, into regions of the Southern United States has challenged traditional understanding of predator-avoidance strategies of native aquatic invertebrates. A member of the Ampullariidae family, *Pomacea insularum* lays its bright pink eggs above the water on emergent substrates. Although native species of apple snail, such as *Pomacea paludosa* in Florida, lay eggs above the water, *Pomacea insularum* remains unique in the specific bright pink coloration of its eggs. Despite their “flashy” color, the eggs rarely exhibit damage in the field, potentially indicating unique predator avoidance strategies in this species. To investigate the potential predatory relationship between *P. insularum* eggs and a native riparian predator, I conducted a series of non-choice experiments involving adult and juvenile red-eared slider turtles (*Trachemys scripta elegans*) and real and fake *P. insularum* eggs. The preliminary results of my research suggest that both the adult and juvenile turtles could be potential predators of *P. insularum* at the egg stage of development. Predation of the egg clutches could slow *P. insularum* spread and prevent further economic/ecological damage in the United States.

10. Disturbing Environments: Nutrient Enrichment Negatively Impacts Water Stressed *Pomacea insularum* Hatchlings
Megan Rice, Biology Department
Sponsor: Dr. Romi Burks

Anthropogenic activity threatens the natural state of ecosystems through two types of pollution: biological and chemical, which can both result in disturbance. Introduction of exotic invasive species directly reflects biological pollution. Nonpoint runoff of excess inorganic nitrogen into waterways indirectly leads to chemical pollution. *Pomacea insularum*, an apple snail native to South America, first occurred in Texas in 1989 and quickly established robust reproductive populations. While previous studies investigated *P. insularum* clutch hatching efficiency under water stress, effects of nutrient enrichment or “chemical pollution” on water stressed hatchling apple snails remain unknown. Therefore, to study mortality, growth and quality of hatchlings, we incorporated pre-condition water stress and post-condition nutrient stress into a 3 x 4 factorial experimental design. Whole clutches either experienced no water stress, low water stress (floating), or high water stress (submersion). After hatching, we placed ten neonate snails into containers with no nutrient enrichment, 0.5 M NaNO₃, 0.5 M KH₂PO₄, or 0.5 M NaNO₃ + 0.5 M KH₂PO₄. Mortality and quality assessment occurred on Day 2 and 7. Surprisingly, pre-condition water stress did not affect hatchling mortality or quality. In contrast, we found significantly higher hatchling mortality with nitrogen + phosphorus exposure on Day 7 and significantly lower quality hatchlings in all three nutrient treatments compared with the control. This work suggests that nutrient enrichment in suburban Texas waterways acts as a disturbance, negatively affecting the survival of *P. insularum* hatchlings. We recommend that future work examine impacts of chemical pollution on invasive abilities of apple snails.

11. Population Size and Movement of the Georgetown Salamander (*Eurycea Naufragia*)
Ashley Wall, Kira McEntire, Biology Department
Sponsor: Dr. Ben Pierce

Salamanders are important biological indicators of water quality and environmental health. Aquatic species retain juvenile traits, including gills and a flattened tail, and are especially vulnerable to human activities due to limited movement and restricted gene flow. The Georgetown salamander (*Eurycea naufragia*) occurs at less than 15 sites in Williamson County; it is a candidate for recognition as an endangered species. At two spring sites in Georgetown, we conducted a mark-recapture experiment in which we captured salamanders, recorded their location within the spring flow, and marked each individual with a unique pattern of visual elastomers. Recaptures of marked and unmarked animals on the second and third days of the experiment allowed an estimate of the adult population size. In subsequent months, recapture of the marked salamanders provided insight into salamander movement. Estimated adult population size at each spring site was about 100-200 adult salamanders, and we observed limited movement of individuals within each site. Their restricted distribution, limited movement, and small population size suggests that the Georgetown salamander is vulnerable to habitat alterations caused by urbanization. These findings contribute to future development of conservation plans and increase basic understanding of the ecology of the species.

12. The Effect of Climate Change on Fishery Production in the Gulf of Mexico
Nneka Maduka, Biology Department
Sponsor: Dr. Max Taub

Anthropogenic factors, such as a rise in carbon dioxide levels, affect climate change. The Gulf of Mexico serves as a well-known aquatic ecosystem, which includes nutrients and shelter for several forms of aquatic life, such as various fish species. Fish communities are affected by the effects of climate change in aquatic ecosystems such as the Gulf of Mexico. Climate change mechanisms lead to a decrease in fish production due to rapid changes of weather patterns over time. Furthermore, climate change causes fish species to migrate from their natural habitat to avoid potential harms or hazards. Fish species that are not capable of adapting to climate change may have difficulties surviving and reproducing unless favored by natural selection. The ability for certain fish species to adapt quickly to climate changes despite sudden change in their natural habitat increases survival rate and allows for more biodiversity. Interactions among fish species decrease due to migration from their natural habitat, which affects fish production. Effects of climate change may also affect the fish industry and consumers of fish products. Research from various scientific primary literature aids in the investigation of effects of climate change on fish production within the Gulf of Mexico. Due to the ongoing nature of this research, a conclusion has not yet been reached on climate change effects on the Gulf of Mexico fishery.

13. Interracial Desire in The Confessions of Nat Turner and Dessa Rose
Rachel Coley, English Department
Sponsor: Dr. Carina Evans

Portrayals of sexual interaction between white women and black men vary greatly in literature. Specifically, I would like to examine William Styron's *Confessions of Nat Turner*, and Sherley Anne Williams' *Dessa Rose* as examples of how differently this issue can be tackled. While both *The Confessions of Nat Turner* and *Dessa Rose* address the concept of sexual interracial desire, their portrayals of it have great disparity. On one hand, Nat Turner is shown by William Styron to have a violent, hostile, and animalistic attraction to white women while still viewing them as wholesome and chaste. In contrast, Sherley Anne

Williams' character Rufel's relationship with a black man, Nathan, is less about staunch aggression than confused notions of love, power, and pain. Ultimately, Williams creates a more complex and therefore more believable interaction between people of different races. I will discuss why such disparity exists, including how race, gender and other factors of both author and subject yield different results in the novel.

14. Shakespeare Out of the Box: A Midsummer Night's Dream

Andrea Neal, Theater Department

Sponsor: Dr. Michael Saenger

"Shakespeare Out of the Box: A Midsummer Night's Dream" is the production of an outdoor theatre performance of the Shakespeare comedy, and is funded by a King Creativity Grant. The goals of this project are to demonstrate that theatre does not need to be enclosed in four walls, and also to bring more Shakespeare to Southwestern. The show, which brings together 14 students of various departments, is a collaboration between the Theatre and English Departments. Performances are scheduled for April 15th in the evening and April 16th in the afternoon, on the academic mall in front of the library. The modern setting production features minimalist technical elements. The show will be an energetic and fun take on the Shakespearean classic.

15. Howling Coyote: The Trickster in Ginsberg

Katherine Mead, American Studies Program

Sponsor: Dr. Robert Bednar

Allen Ginsberg was a founding father of the Beat generation, a poet, outsider, and activist whose works were influenced by his Zen Buddhist beliefs, Jewish heritage, and friendships with other Beats such as Jack Kerouac. However, scholars often overlook or understate the influence of other cultures and religions on his poetic works. His poetry deserves a new look through the scope of an entirely different set of cultural and religious beliefs, those of the Native Americans. The research will focus on the Native American archetype of the trickster Coyote and its presence within the poem "Howl." Through examination and comparison of Ginsberg's erotic humor and wisdom with those of the Native American trickster mythologies, I hope, not to prove that he knowingly attempted to employ this specific character within his work, but to reconsider his poetry through the scope of Native American trickster mythology. In doing so, I hope to gain a fuller understanding of his sexual humor, paradoxical wisdom, and unique American voice. However, for the purposes of this Symposium, the focus primarily upon only one connection between Ginsberg's "Howl" and the trickster Coyote, that of Transformation.

16. Patient-Centered Medical Homes as Innovative and Viable Health Care Reform

Cody Smith, Economics and Business Department

Sponsor: Dr. Mary Young

In recent debate over health care reform, two main policy objectives pervade discussion: increasing quality and decreasing cost. Most facets of our current health care system and health care reform are characterized by a tradeoff between these two objectives; however, patient-centered medical homes (PCMHs) appear capable of achieving both higher quality and lower costs. Evidence suggests that PCMHs may provide cheaper, more affective, and more enjoyable care in some markets, such as childhood obesity care, long-term treatment for mental disorders, and treatment of other chronic diseases. After considering that chronic care accounts for more than 70% of America's health care expenditures, the importance of innovative reform is undeniable. Furthermore, PCMHs are uniquely suited to develop a unified health care IT system. The development of such a system is critical to the analysis of trends in costs, usage, and quality of care, and could prove invaluable for the health care

sector as a whole. Lastly, recent health care reform laws provide increased government funding and support for the development of community health centers. The advantages of PCMHs suggest that some of this support should be directed into the development of PCMHs. By expanding the role of PCMHs in our health care system, the widespread viability of this model can be more thoroughly examined. The patient-centered medical home model has the potential to redefine health care in America and achieve many universal policy objectives more effectively than any incremental changes to the current system could hope to.

17. Education Narrows the Income Gap Between African Americans and Whites

Maggie Bishop, Economics and Business Department

Sponsor: Dr. Emily Northrop

This paper examines the role that education plays in decreasing the income gap between African Americans and Whites. Although increased skill availability has encouraged this gap to grow smaller throughout the years, it remains significantly wide. Integrated and segregated schooling is examined. Research suggests measurable, economic differences between separate White and African American schooling. This includes quality of teachers, facilities, course options, and safety. The focus of the paper, however, is the animal spirits in education, non-measurable aspects affecting the education of Whites and African-American students. Specific education methods have been tested in many studies and have proven effective for certain social groups while useless for others. Personal identity and identity with the school, for example, also play a large role in the way students react to education. Additionally, there is a trade-off between identifying with the school and academic achievement. This paper seeks to determine the education methods and levels of trade-off that must shrink the African American, White income gap.

18. Global Imbalances and the Financial Crisis

Nicholas Pierce, Economics and Business Department

Sponsor: Dr. Emily Northrop

As the recent financial crisis, which began in August of 2007, spread, it moved from financial markets to real economies in countries around the world. To counter this, governments, like those of the United States, have focused on many short-term measures like putting together stimulus packages and bailouts to contain the damage. The presentation argues that policymakers must begin to move beyond this simple view and instead look at one of the root causes of the financial crisis: global imbalances. In doing this, my presentation will explore recent literature analyzing the nature of global imbalances. After analyzing the various facets of global imbalances, determining the importance global imbalances had in the recent crisis and prescribe a number of steps to address the problem.

19. Regulating the Payday Loan Industry

Blake Bissing, Economics and Business Department

Sponsor: Dr. Emily Northrop

Recent studies have shown that over seventy-five percent of payday loan borrowers are unable to pay off loans that average over four hundred percent APR in the allotted time of two weeks, and the excessive fees that result from multiple loan rollovers cost consumers over three billion dollars per year. In addition to snowballing fees and rollovers, the payday loan industry has particularly preyed on military families, harassed customers, and has exploited consumer naiveté to extend loans as long as possible. These consumer abuses are the result of a fractured system of regulation whereby states police the industry according to their particular, often lax, laws, which is unique for a financial product that normally falls under the scrutiny of the federal government. There have been three proposed

regulatory regimes for the payday-loan industry: interest rate and loan term caps, where interest rates are not allowed above a certain APR and the loans are given a longer amount of time than two weeks to be paid off, explicit banning of the industry, or letting the industry regulate itself. This paper follows the history and development of payday loans and, using empirical evidence of the different regulatory structures, concludes that a consistent set of interest rates and loan term caps across states is the most efficient way to restrict extravagant charges imposed by payday lenders while still giving low credit borrowers access to short-term loans.

20. Government Sponsored Capitalism: A Look Into Government Sponsored Enterprises
Brendin James, Economics and Business Department
Sponsor: Dr. Emily Northrop

Since the establishment of the Farm Credit System in 1916, the United States government has relied on Government Sponsored Enterprises (GSEs) to create stability and provide services not provided by the market. The most familiar GSEs are the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac) established in 1968 and 1970, respectively, to serve as a secondary mortgage lender; helping to expand the housing market. Yet even though these same policies are also the main culprits behind the housing crisis in 2008, new regulations of GSEs were excluded from the Dodd-Frank Financial Reform Bill in 2010. This issue of GSE reform is just now beginning to be debated as the current administration has just recently released its three suggestions on how to reform GSEs. After analyzing these suggestions, I argue that these reforms still do not go far enough to fix current problems.

21. Private Savings: Why Standard Theory May Be Wrong
Matt Wladyka, Economics and Business Department
Sponsor: Dr. Emily Northrop

Following the recent financial crisis, some economists have suggested that standard economic theory may not accurately explain how the U.S. economy works. Economists are looking elsewhere for theories that will more accurately explain economic behavior. Personal savings, which has been exceptionally low for the past two decades, is among the economic behaviors that lack a sufficient explanation within the mainstream theory. Standard theory claims that savings decisions are based on rational calculations of what a dollar's present value is compared to its future value; rational decisions about how much to save and spend are made accordingly. Behavioral economics argues that personal savings decisions are often less informed and quite arbitrary. This paper evaluates how behavioral economics, an alternative field that investigates the economic consequences of psychological factors, explains private savings behavior. Furthermore, this paper demonstrates that behavioral economics has important theoretical and policy-relevant implications.

22. Gender Wage Discrimination Among College Graduates
Ann Alston, Economics and Business Department
Sponsor: Dr. Dirk Early

Using data from the 2003 and 2006 waves of the National Survey of Recent College Graduates, this project examines gender wage discrimination among recent college graduates. This study regresses the log of wages on gender, age, minority status, US citizenship, employer size, job type, and college major. Multiple ordinary least squares regression models are utilized to analyze the data. Similar results were found across both years. The data suggest that there is a significant wage premium for males, and that the wage gap varies across job and major. In general, men and women in male-dominated jobs

and majors tend to earn more than female-typed and gender-balanced jobs and majors, though there are exceptions. This study also finds some evidence that in the first few years after graduation from college, women who graduated with certain majors will be subject to gender wage inequality, but those from other majors will not. In engineering, for example, the results suggest that women actually earn more than men.

23. Dodd–Frank Wall Street Reform and Consumer Protection Act of 2010: An Empty Promise
Cody Smith, Economics and Business Department
Sponsor: Dr. Emily Northrop

In the wake of the financial crisis of 2007-2009, the Dodd–Frank Wall Street Reform and Consumer Protection Act seeks to heighten regulation throughout the financial sector, particularly in the derivatives market. This effort consists of strengthening regulatory agencies, the establishment of a Consumer Protection Bureau, stricter credit rating agency standards, and various other agenda. Dodd-Frank’s primary goal is to prevent another crisis from happening. However, various sources suggest that much of the meaningful regulation was “fine-printed to death,” and that we are left with a well-intended piece of legislation that lacks clout. This legislation does not embrace the regulatory approach strongly enough and may not prevent future crises due to its regulatory weaknesses. Furthermore, it will not achieve its secondary goal, pulling our economy out of the current recession. If anything, a lack of certainty as to how this new reform will affect the banking and financial sectors may prolong the recession by keeping investment confidence low. In order for regulation to be feasible, regulators must be highly skilled, and capable of keeping up with financial innovations (e.g., mortgage-backed securities, credit default swaps, etc.). Failures to understand and to properly regulate such innovations often contribute to financial panics. Furthermore, they must have broad and flexible enough powers to be able to evolve with the ever-changing financial market. Unfortunately, financial regulation is rarely of this nature, and evidence suggests Dodd-Frank is no different.

24. Legends and Darkness: Terrorism in German Film
Sean Stumpf, Modern Languages and Literatures Department (German)
Sponsor: Dr. Erika Berroth

This paper proposes to analyze how films act as media for representing and interpreting history, through examining films produced about the terrorist movement and its leaders in Germany during the 1970s. The focus specifically on the Red Army Faction (RAF), as well as on more recent representations of terrorism in modern German cinema. Sparked by the protest movements of 1968, the RAF committed terrorist acts against symbols of Western society and German government officials, peaking in the events of “Deutscher Herbst” (or German Autumn) in 1977 and maintaining a presence until 1998. The films produced during and after this period, offer interpretations of terrorism by directors, and make the topic internationally accessible. In conjunction with the subject of terrorism, this paper analyzes significant themes including feminist ideals of the empowerment and independence of women, the psychological bond the film directors forge between the terrorists on the screen and the audience, and most definitively, how films serve as a medium by which film directors participate in the representation of history. I identify a common theme of “darkness” resulting from viewers’ interpretations of the intentional open-endedness of these films. This theme is rooted in the experiences of trauma in the 20th century, casting a shadow over the present and future. There is a generational variance to the interpretation of this “darkness,” as we take into account shifts in the contexts of production and reception when films contribute to the discourse on the history of terrorism.

25. Freud y los Porteños: Observing the Influence of Psychoanalysis on Argentine Film
Brady Granger, Modern Languages and Literatures Department (Spanish)
Sponsor: Dr. Angela Rodriguez-Cadena

Introduced into Argentina in the 1920s, psychoanalysis has a long and influential history in the country, specifically in Buenos Aires. The capital city has been estimated to have more psychoanalysts per capita than any other city in the world, resulting in a populace that views psychoanalytic therapy as a healthy practice as opposed to a treatment for mental illness or depression. Through all of the political turmoil in Argentina during the middle of the 20th century, psychoanalysis served as a tool for middle class porteños to examine the idea of Argentine national identity, among other things. The aim of this essay is to utilize the history of psychoanalysis in Argentina and to examine its effect on the Argentine national psyche as seen through the medium of film, specifically film produced since the end of the dictatorship. This essay will attempt to establish a connection between the widespread practice of psychoanalytic therapy in Buenos Aires and contemporary Argentine film. Although the title and abstract are presented in English, it is the intent of the author to give part, if not all, of the presentation in Spanish, the language in which the essay is written.

26. Le Dévoilement de la Relation Entre L'Islam et la Laïcité: The Unveiling of the Relationship Between Islam and French Secularism
Lauren Glass, International Studies Program, Political Science Department
Sponsor: Dr. Katy Ross

French secularism in contemporary politics and the role of women in the Western world are currently carving out a new identity for Muslim women; an identity which, according to French law, does not include their veils. French secularism and the recent laws ruling against the burqa reinforce French Republican values, but at the same time uproot the cultural and religious identity of Muslim women, which could have potential consequences for Franco-Arab relations. The fact that Islam, the second religion of France, is not officially recognized by the state represents a grave problem for France and the implementation and validity of the laws that support the secular foundation of the French Constitution and that reject the headscarf and the burqa as ostentatious symbols of Islam.

27. English Language Learning in Elementary Science Classrooms
Kim Sump, Education Department
Sponsor: Dr. Michael Kamen

Science content in the Elementary curriculum requires students to not only use reasoning and reflective skills, but also requires students to develop and expand a technically-based vocabulary. With the added pressure of standards-based instruction and high-stakes testing, tensions involving pedagogy and practice for diverse learners, especially in multilingual settings, are highlighted by the requirements of a successful science education. The role of teachers in navigating various English language proficiency levels within the classroom is to provide an equitable learning environment, but it is often unclear how to best approach this complex task. This presentation will consist of a review of literature, as well as a discussion of ongoing data collection. Topics include English as a second language, Bilingual education, alternative schools including charter school language programs, and state, district, and school-level policies and programs. Recommendations will be made in the area of best-practice approaches to English language-learning within the science curriculum, at various proficiency levels within early childhood through fifth grade education.

28. Teaching English Language Learners Science

Nekia Tharps, Education Department

Sponsor: Dr. Michael Kamen

Teaching science to English language learners has always been a challenge. After working in many classrooms that have students who are learning English, science is like another added foreign language. With the positive and negative effects of pullouts, one on one instruction, or curriculum supplements in their native languages, I will search for which methods will be key in the success of ELLs. This is important, especially since ELLs are the fastest growing group of students in grades K-12. There is now greater support for inclusion style classrooms, but even with this new support there is still difficulty in adapting lesson plans, and assessing the progress of ELL students. Examining the different challenges that ELLs face in other core curriculum areas and determine if science is more difficult in comparison to the rest. I will determine what teachers are doing in those other core areas to get positive results. Ultimately, the conclusion will show the best methods and techniques that teachers should be aware of and trained in to help ELL students to become successful in the classroom.

29. Environmentalism and U.S. Climate Change Policy: When and Why it Fails

Cameron Holland, Environmental Studies Program

Sponsor: Dr. Laura Hobgood-Oster

Climate change is an issue of ever-increasing importance. As more and more scientific evidence mounts that humans can and are impacting global climate, the time has come to create a new discourse geared at alleviating the problem. At the head of this movement are environmentalist groups that use a variety of tactics to influence political decision-making on Capitol Hill. While these groups have influenced a variety of landmark environmental legislation, all too often their interests are put aside and/or marginalized as merely another special interest. This is, in large part, due to ineffective communication of ideas/concepts. This paper will attempt to create a new and better framework to approach the issue of climate change policy. Of critical importance to this dialogue is an accurate scientific foundation, from which policy can be derived. After discussions of the scientific bases behind climate change, and an overview of environmentalist methods for influencing policy, the final section will center around a discussion of cap-and-trade as a market-based method for curbing carbon emissions. Environmentalist efforts promoting cap-and-trade, and their reception by Congress will be discussed.

30. Working Without Bosses: The Political Implications of the Workers Movement at FaSinPat

Benjamin Atkins, Philosophy Department

Sponsor: Dr. Omar Rivera

The detection and identification of bacteria in blood samples is crucial for treating patients suspected of having a blood infection. Current hospital methods for pathogen detection are time-consuming and multi-step processes. Inspired by Gerald J. Wade's 1979 patents, we set out to design and construct a system for detecting and identifying microorganisms in order to expedite effective treatment. We devised a system of electronics to examine the change in electrochemical properties of a sample in response to bacterial growth by measuring the sample's electrical charging and charge dispersion characteristics. After initial trials, we found that a sample yielded consistent voltage measurements of approximately 200 millivolts prior to any detectable growth. The first species tested, *Escherichia coli* (*E. coli*), was detected 16.3 hours after its inoculation in a culture bottle. In future tests, we expect detection times to vary in proportion to the growth rate of each species.

31. Creator-God or Prime Mover: Thomistic and Aristotelian Metaphysics

Andrew Waller, History Department

Sponsor: Dr. Hal Haskell

Thomas Aquinas' masterwork, *Summa Theologiae*, draws heavily on the work of Aristotle, specifically in relation to Aquinas' arguments concerning the existence of the Judeo-Christian God. However, although Aquinas makes use of the concept of Aristotle's Prime Mover, an uncaused First Cause of all things (as described in book 12 of Aristotle's *Metaphysics*), Aquinas takes Aristotle's conceptions of the Prime Mover to a different level. Aquinas' God functions not only as the Aristotelian First Cause, but also serves as the Creator, as Aquinas lays out in Part I, Quaestio 44 and 45 of *Summa Theologiae*. Aquinas postulates in Part I, Quaestio 46 that as the Creator, God existed before the universe was created and continues to provide the cosmos and its contents with their "esse," or being. This stands in contrast to Aristotle's view of the universe as eternal and his conception of the Prime Mover as an impersonal being who caused, but does not sustain, the created order as Aristotle defines it (i.e., "the sensible universe and the world of nature"). This paper seeks to more fully investigate how these specific variances distinguish the Aristotelian Prime Mover from Aquinas' conception of the Judeo-Christian God.

32. Demosthenes and the Great Man in "Against Conon"

Donald Frye, Classics Program

Sponsor: Dr. Pam Haskell

Within the forensic speeches of fourth century Athens, logographers relied upon multiple different methods in order to sway juries. One of the most common strategies that they employed was to attack the honor of an opponent while also portraying the client as an honorable and trustworthy man, so that the jury would side with the client because of his trustworthiness. In this paper, Demosthenes' speech against Conon is analyzed for how he portrays his clients' honor and his opponent's dishonor. For example, Demosthenes ends the speech discussing Ariston's liturgical service as a sign of his good character, while also at one point in the speech calling Conon all sorts of names, including "one who digs through walls" (54.44 and 54.37). These descriptions are then given a broader application in order to determine what the cultural understandings of honor and dishonor were in fourth century Athens.

33. We Will Provide, Women Decide: The Ecuadorian Movement for the Legalization of Abortion and Ordinary Democracy

Amanda Doenges, Sociology and Anthropology Department

Sponsor: Dr. Melissa Johnson

This paper employs Pogrebinschi's framework of ordinary democracy as an interpretive lens for understanding the Ecuadorian social movement for the decriminalization of abortion. This movement's utilization of the democratization of knowledge, creation of alternative discourse that challenges traditional gender norms espoused by the Catholic Church, and a cultural approach to politics, illuminates the ways in which it seeks to transform social realities and misconceptions of women's experience. The goals of the movement are reflective of ordinary democracy because they allude to the role which common human experience plays in democratization. This analysis is based upon formal and informal interviews as well as participant observation in grassroots organizations and activities surrounding this movement over a four-month period in Quito, Ecuador.

34. Domestic Border Struggles: The Adoptive Family as a Borderland
Matthew Kamas, Sociology and Anthropology Department
Sponsor: Dr. Melissa Johnson

The U.S. State Department reported just over 11,000 intercountry adoptions in 2010 (USSD 2011). While the pre-adoption process is quite rigorous and exhaustively supervised by the State Department, there is little to no oversight for post-placement families, which seems strange as it can easily be assumed to be the most challenging portion of the process. This is why my research focuses on two U.S. families who have adopted adolescent children from Ethiopia. Using the framework of Gloria Anzaldúa's *Borderland/ La Frontera*, I will follow how their process of creating a family out of differing backgrounds can be seen as liminal and therefore both an individual and familial borderland. I will approach their experiences reflexively from the stance of a native anthropologist, as I am part of a transnational, transracial family myself. The analytic of the borderland reveals the complexity of deciphering contradictory senses of self for members of transnational and transracial families.

35. "We'll Do the Best We Can": How Volunteers Overcome Frustrations to Stay Motivated and Involved in the Animal Welfare Movement
Alex Brown, Sociology and Anthropology Department
Sponsor: Dr. Maria Lowe

What factors contribute to the maintenance of the animal welfare movement? Why do volunteers continue to participate in animal welfare work despite discouraging or emotionally taxing situations? Using over 23 hours of participant observation with animal welfare volunteers in and around local animal shelters, in-depth interviews of seven animal welfare volunteers of various degrees of involvement, and content analysis of group materials such as brochures and websites, I explore movement maintenance and continued involvement in the animal welfare movement. Although an abundance of literature exists on movement maintenance, social movement literature lacks information on factors which affect the continued participation of individuals in social movements. Several factors contribute to the continued involvement of volunteers in animal welfare despite the frustrations associated with animal welfare work. These factors include personal beliefs, community, emotional investment, and various coping mechanisms used by the volunteers. The results confirm that volunteers' persistence in discouraging work is supported by factors which in different ways make their involvement worthwhile.

36. "Welcome to Hell": The Role of Framing and Recruitment in Saving Souls
Toni Nietfeld, Sociology and Anthropology Department
Sponsor: Dr. Maria Lowe

This presentation evaluates how a Pentecostal church in a mid-sized town in the South uses its annual Hell House to frame social and political issues. In addition, it examines the ways in which Hell House functions as a ministry/recruitment tool by using moral shock and condensing symbols to impact audience members. Utilizing ethnographic research, in-depth interviews, and an analysis of organizational materials, the present study finds that organizers employ very similar diagnostic, prognostic, and motivational frames in each scene in Hell House though the scenes deal with very different social issues, which suggests that consistency across – as well as within – frames is important for establishing an organization's credibility. The findings also indicate that the condensing symbols in Hell House appeal to secular values, while the religious message is conveyed through the frames. Though Hell House does not directly ask audience members to join a social movement or become involved in political action, it appears that their use of particular

frames may be a way to lay the ideological groundwork for people's support of their views on political issues.

37. Math Anxiety in Elementary and Secondary School Students

MiHyang Baik, Education Department

Sponsor: Dr. Michael Kamen

Math anxiety is a significant problem among kindergarten through 12th grade students in the United States. Millions of adults in the US are denied opportunities because of their fear of and/or low performance in mathematics. While math anxiety and achievement issues cross gender, cultural, and economic lines, these issues are reported more often in some of these sub-groups. This research project is exploring the roots of math anxiety in the US and interventions that can address this problem: (1) what is it, (2) who has it, (3) why do people have it, and (4) what can be done to prevent or respond to students who exhibit math anxiety. The two components of math anxiety have been identified. One component primarily taps negative affective reactions to math, such as nervousness, fear, and discomfort. A second factor is concern about doing well in mathematics. Effective interventions include strategies to alleviate both affective and cognitive elements. Early intervention often has the most positive outcomes

38. Implementing Ruppert's Algorithm for Smooth Curves in 2D

Matthew Flatau, Math and Computer Science Department

Sponsor: Dr. Barbara Anthony

Meshing in computer science is the process of breaking down a complex shape into simple shapes. Many meshing algorithms are used to model real world physics, such as in fluid dynamics, or for computer graphics in video games and movies. In two dimensions, one of the most common base polygons for creating a mesh is the triangle. A triangulation is a graph of edges and vertices that together form a collection of triangles. For many of the computer modeling algorithms that use meshes, certain properties are necessary for a triangulation to be a good model of the original shape. Most of these requirements are a way to make the triangles more 'regular,' with no unnecessary tiny angles.

Ruppert's algorithm was designed to take a triangulation and improve upon it to remove all small angles. By doing this, large angles are also removed from the triangulation. My project implements a modification of Ruppert's original algorithm to use curved inputs instead of just straight-line graphs. It creates an initial triangulation from a curved input and then improves upon this triangulation to create a more useful mesh. The implementation is designed to leave Ruppert's algorithm as close to the original as possible, which increases the modularity of the methods, allowing new types of curves to be added easily. It also provides a solution for the failure to terminate issue, which can arise in Ruppert's algorithm. I will describe how Ruppert's algorithm was modified and provide examples of its meshing.

39. The Queering (or Not) of Latin America Through Same-Sex Marriage Legislation

Juan Juarez, Political Science Department

Sponsor: Dr. Shannon Mariotti

Latin America has a population that is estimated at more than 590 million (CIA The World Factbook 2010). According to the 2010 Out Now Global LGBT Study, out of the 590 million living in Latin America there are 25 million LGBT people in Latin America (World Travel Market 2010). That is 4.23% of the Latin American population. Due to such a low percentage, gay and lesbian politics in Latin America has been an area with very few studies in Political Science (Corrales and Pecheny 2010, 1). However, in the recent five years, same-sex marriage for gay and lesbian individuals has received greater institutional support in Latin America despite "regional traditions and norms... [and where]

fundamentalist religious forces have enjoyed practically unquestioned access to policy makers for over 500 years” (Echegaray 2010). The theory behind the development of same-sex marriage legislation is attributed to several gay and lesbian activists groups that have made legislative gains across Latin America (Echegaray 2010). Therefore, the prospects and challenges of advancing efforts to address same-sex marriage in Latin America have recently caught the attention of policy makers world wide with the recent approval of same-sex marriage legislation in Argentina (Echegaray 2010). With the large amount of gay and lesbian group activism in other countries, such as Mexico and Brazil, researchers would assume that same-sex marriage legislation would be passed throughout the majority of Latin America. However, that is not the case. The following question is then posed: what accounts for the varying levels of success in same-sex marriage legislation in Argentina, Mexico and Brazil?

40. Concentrated Animal Feeding Operations: Why They Exist and Why They Should Not
Abbey Benold, Political Science Department
Sponsor: Dr. Shannon Mariotti

Concentrated Animal Feeding Operations (CAFOs) produce the majority of the meat consumed in the United States, but at what cost? It is undeniable that CAFOs cause enormous environmental devastation and are a cruel way to raise livestock. Torture, pollution, disease, and deforestation are only a few of the consequences of CAFOs, and yet these "Factory Farms" continue to grow larger and more powerful each year as the demand for meat increases. Is neo-liberalism to blame for the economic success of CAFOs? Has neo-liberal thinking pervaded our contemporary consciousness and made us immune to caring about the devastation they cause? Is there a way to make the meat industry sustainable and humane? Can CAFOs exist in a humane and sustainable meat industry? What can each of us do to help end the atrocities committed by CAFOs? These are some of the questions we must ask ourselves as the demand for meat rises along with the world population, and these are the questions I will explore in my presentation.

41. Corporate Personhood
Rachel Freeman, Political Science Department
Sponsor: Dr. Shannon Mariotti

The development of my argument began with my interest in neoliberal thought and its claim that the market economy is the principle agent in both public and private sectors. With an ever-globalizing society, the impact of the market is far reaching, going beyond the borders of our own nation. In fact, borders have altogether disappeared in some regards, as have the concepts of limitations and boundaries. It is from this self-interested, profit-maximizing mindset that the corporate figure has come to thrive, gaining strength in the form of legal rights equal to those of human individuals. This forces us to look at the future of human society. As we continuously strive to meet corporate standards without realizing the boundaries of our own human faculties, we essentially allow the corporation to assume the role of the ideal neoliberal subject. Thus, the question I ask is: what are the implications of the evolving concept of corporate personhood on human life? As my capstone, this research project will focus on the corporation as a non-human entity which continues to gain status equal to, if not more influential than, that of living human beings. I will draw upon a series of Latin American case studies as evidence to illuminate those consequences.

42. Locke and Liberalism at the Founding

Rebecca Lester, Political Science Department

Sponsor: Dr. Shannon Mariotti

American Liberalism is often assumed synonymous with Lockean liberalism as American liberalism does incorporate many Lockean tenets and Locke was often referenced implicitly in the founding documents. These same Lockean tenets also appeared in the political rhetoric of the day showing at least a convergence with Locke, if not a deeper foundational reliance. While the convergence is undeniable, such convergence does not necessarily imply a foundational Lockean perspective but rather points of overlap and mutual reinforcement potentially based on a shared value system. The influence of Puritan thought on both Locke and America during the founding is a potential explanation of such convergence. Puritan thought about the nature of an individual, society, and government seems to closely follow Lockean premises with some seemingly key divergences in the role of government in society, which would allow for both significant convergence and a moment of divergence. The possible divergence that will be examined is Locke's notion of the social responsibility of government, which seems to go against the puritan notion of individual responsibility. If a substantial divergence can be found in which the founding followed puritan or protestant liberal norms at the expense of Locke, then it could be asserted that at least at the founding, liberalism in America diverged from Locke. Such a divergence would also allow the possibility that Locke's popularity was due to the prevalence of pre-existing liberal principles rather than positing them originally in American political thought.

43. CEO Pay

Shaun Cooper, Economics and Business Department

Sponsor: Dr. Emily Northrop

Fat compensation packages for top corporate executives in the midst of an economic recession has spiked recent interest, and even outrage, among the general public and politicians. This, however, is only the most recent episode in the ongoing debate on whether executive compensation, and in particular CEO pay, is unjustifiably high. Recent developments in behavioral economics have challenged the "optimal contracting model" of CEO pay by pointing out a number of inefficient and irrational elements in the CEO labor market caused by psychological and cultural factors. Additionally, these market failures may combine with the structure and process of corporate governance, with powerful CEOs and weak directors and shareholders, to further increase CEO remuneration. This paper will address the question of what effect this has on the company in terms of shareholder value, as well as the broader societal implications. It will argue from the context of corporate tournaments that escalating CEO pay is contributing to the detriment of both shareholders and of society.

44. If It Doesn't Make Dollars, Does It Make Sense? A Review of Neuroeconomics

Addison English, Economics and Business Department

Sponsor: Dr. Emily Northrop

In the wake of the recent financial crises, the worth of economics as a discipline has been called to question. Critics of mainstream theory have looked to the heterodox schools of thought for alternatives that better explain the anomalies witnessed in the last decade. An interesting area of research, Neuroeconomics, seeks to validate existing economic theory by using methodologies borrowed from psychology and neuroscience. Specifically, the field aims to build an interdisciplinary behavioral model that explains economic decision-making, as well as to provide support for the influence of noneconomic factors in decision-making. This paper will summarize the development of Neuroeconomics thus far, and discuss future

directions for Neuroeconomic investigation. Overall, this paper demonstrates that the field offers significant contributions, both theoretically and methodologically, to the discipline of economics. In particular, rational choice theory, saving behavior, and risk assessment behaviors are areas that could benefit from Neuroeconomic research.

45. Decreased Lending Standards During the Housing Bubble and the Exploitation of Minorities
Ben Feiler, Economics and Business Department
Sponsor: Dr. Emily Northrop

Throughout history low-income minorities, African Americans and Hispanics, have struggled to obtain loans from financial institutions. This dilemma changed during the housing boom. Through decreasing lending standards and the creation of financial instruments such as mortgage backed securities, it became possible for low-income minorities to receive loans. What were once deemed difficult to receive for minorities with low incomes, mortgages in the time period leading up to the housing crisis became less difficult to obtain as the sub-prime mortgage market exploded. Lenders began to seek out homeowners and individuals in minority and low-income neighborhoods through predatory lending strategies. As beliefs that ever increasing housing prices would solve any default risk increased, many minorities and low-income individuals with bad or nonexistent credit were able to obtain subprime loans. Through research of why and how lending standards have changed in the years leading up to the housing crisis, discussion of statistics concerning the increased ability of minorities to receive loans where they previously could not and the increased amount of mortgage defaults and home foreclosures among minorities leading up to the bust of the housing bubble, this paper will show how decreased lending standards during the housing boom led to predatory lending strategies by financial institutions as well as the exploitation of minorities and helped to fuel and expand the subsequent bust.

46. Are Consumers Really Rational?
Tim Hord, Economics and Business Department
Sponsor: Dr. Emily Northrop

The neoclassical idea that humans behave rationally remains a pertinent paradigm within modern economic theory and analysis. In economics, a rational decision is considered one that maximizes an individual's personal utility or economic position. Many economic models are based on the assumption that all individual decisions are based solely on rationality. However, rational choice theory does not accurately represent the consumer decision-making process. This analysis demonstrates how rational consumer choice is not always the underlying motive behind consumer purchases. More specifically, this study observes modern marketing methods and tools that are designed to influence consumer decision-making. Comparisons of these marketing techniques with modern consumer behavior theory, and the results of several psychological studies, support the key analysis and final conclusions of this work. The results of this analysis demonstrate the existence of non-rational consumer decision-making across markets. Furthermore, these findings show the prominence of marketing techniques designed to reduce a consumer's rationality during a decision-making process. In conclusion, these findings argue that assuming rationality narrows the effectiveness of modern economic theory, analysis, and real-world application. In the future, the fusion of psychological and economic theory will eventually phase out rational choice models. This will lead to more accurate analysis and more effective application across the field of economics.

47. Are You Smarter than a 5th Grader?: An Econometric Study of the Determinants of 5th Grade Math Scores

Maggie Bishop, Economics and Business Department

Sponsor: Dr. Mary Young

This study examines which variables are important predictors of the math scores of 5th grade students. The data used is drawn from The Early Childhood Longitudinal Study (Child Care and Early Education Research Connections 2006). OLS analysis suggests that race, income, mother's education, class ability level, and teacher math certification were all important predictors of the math scores of 5th graders. Although confidence in math ability is not a variable in this model, it has a large influence on math literacy and is inherent in many variables of the study. Psychological research suggests that students become more aware of the stereotypes associated with math-related jobs and often conform to these ideas as they move up in grade level. Other research states that parent education plays a large role in student math literacy. Mothers' level of education shows the largest positive impact. On average, Blacks underperform Whites by the greatest magnitude of all races or ethnicities. Results of the study suggest opportunities that policy makers could offer to low income, minority students in order to increase their math literacy, such as extracurricular activities in music and sports. Policy makers may also want to designate funds for special programs that target the learning styles of lower scoring students in order to raise scores. Additionally, school officials and policy makers could encourage teacher certification to improve teaching and student teacher relationships.

48. Determinants of Baseball Pitcher Salaries

Jenna Mossbarger, Economics and Business Department

Sponsor: Dr. Mary Young

Within this paper, a model is proposed to estimate professional baseball pitchers salaries. Within this model, the variables earned run average (ERA), average leverage index (aLI), team wins (Tmwins), innings pitched (innings), age, and free agency will be applied to multiple regressions as a means for determining the most accurate prediction of pitching salaries. These variables will be chosen from looking at previous literature, descriptive statistics, as well as general theory on baseball. Finally, the results of the predicting models will be compared to the real-world salaries of professional pitchers to determine whether or not the model provides an accurate explanation of pitching salaries.

49. Argentine Student Activism and the Media in the 1960s

Perri Pyle, History Department

Sponsor: Dr. Thomas McClendon

University student activism in Argentina during the presidency of Juan Onganía (1966-1970) is an interesting subject. The first of a series of increasingly repressive military governments was installed during this period and as many came to power by force, they then used force to maintain their precarious (and constantly threatened) status as the leaders of Argentina. University students were a particular target of the military regimes, and thus made up a large percentage of opposition groups. Under increasingly repressive laws that limited public displays of dissent, students turned to the media to undermine the governmental restrictions placed on them. Activist groups railed against the regime in university pamphlets and debates, while others joined budding militant organizations and wrote for underground political newspapers. In this paper I will be exploring the ways in which young activists used these media sources to make their voices heard—through university publications and

guerrilla newsletters— launching an ideological, rather than a physical, attack on their oppressors.

50. Voice of the People, Voice of God: Paul Kruger and Afrikaner Republicanism

Andrew Waller, History Department

Sponsor: Dr. Thomas McClendon

The history of Afrikaner nationalism was significantly affected by the influence of Paul Kruger, the president of the Transvaal Republic during the late nineteenth century, and a prominent figure in the realm of Afrikaner political thought. Kruger developed a new ideology that drew heavily upon a fusion of the religious language of Calvinism with an Afrikaner-centric republicanism. Kruger held to a Calvinist understanding of the sovereignty of the Christian God; he also believed in the existence of a national covenant between God and the descendants of Dutch settlers in southern Africa, who were conceived as an Afrikaner "nation," a distinct ethnic and cultural entity. Kruger's peculiar understanding of Afrikaner national identity fed into his republicanism and his desire for an Afrikaner state independent from British rule. This paper seeks to ask historical questions concerning the origins and development of Kruger's ideology, as well as to determine the effects of Kruger's influence upon later forms of Afrikaner republicanism, specifically the ideology of the National Party (the originator of apartheid) in the mid-twentieth century.

51. The Nose: Shostakovich's Revolutionary Soviet Opera, Rejected by the Revolutionary Soviet Regime

Benjamin Bracher, Music Department

Sponsor: Dr. Michael Cooper

This paper looks into the social purpose and context of Shostakovich's opera *The Nose*, and through this example, at the larger picture of music and cultural censorship at that time period in the USSR and in Shostakovich's life. *The Nose* is a comical satire, written in an unconventional and complex musical style meant to push Soviet opera forward in a new direction. This paper will not only examine how the opera was satirical and outside the norm in its musical style, but why Shostakovich composed in the musical style that he did at that time (in the late 1920s) and chose the satirical libretto by Nikolai Gogol. It will also examine where Shostakovich meant to go with this style and satire, as well why the opera was censored by the USSR, and how this censorship affects Shostakovich's compositional style and direction of his future works. Overall, this paper examines Shostakovich's social and musical mission behind the composition of the opera *The Nose*, and how the composition advanced those missions (or failed to do so).

52. Eve Beglarian and "The bus driver didn't change his mind" in a Social and Musical Context

Catherine Klassen, Music Department

Sponsor: Dr. Michael Cooper

Classical music has conveniently left women out of the musical canon, even into the modern era. Composers such as Clara Schumann and Fanny Hensel were not permitted to exceed the fame of their male counterparts, and Nanerl Mozart was forced to fall by the wayside while her brother continued on to musical immortality. Even today, a Wikipedia search for female composers of the twentieth century only turns up a handful of names. Music composition has been a male dominated occupation in an ironically deemed "feminine" art realm. Finding the much-needed feminist voice in classical pieces takes a lot of digging and is next to impossible. Such a lack of female voices in a society where women are portrayed as "virgins or whores" and held to ridiculous body standards is unacceptable, if not dangerous. Eve Beglarian is a lesbian American composer who, while she does not focus solely on feminism in her pieces, explores the pressures placed upon women both in the

music world, and in society at large. Written for strings, piano, clarinet, electric guitar, voice and tape, "The bus driver didn't change his mind" makes a statement about the perception of women as inferior and women's struggle to be rid of the boundaries imposed upon them, both in a musical context and in a broader context of society in general.

53. Viktor Ullmann's Mission for Freedom

Sara Watson, Music Department

Sponsor: Dr. Michael Cooper

Viktor Ullmann, born in 1898 of Austrian descent, was a student of Arnold Schoenberg and composed many works before being sent to Theresienstadt, or Terezin, a concentration camp during WWII. This camp was created by the German Nazis as a model "Jewish settlement," something to represent what their camps consisted of, even though this was not the case, but instead the exception. Viktor Ullmann, along with many others, composed a number of pieces and created works of art in this camp. The purpose of these pieces was meant by the German's as a means of propaganda to give a false idea of their treatment of humanity, one that would look very positive to the outside world. While this was the mission of the camp, it was most definitely not the mission of the composers. Viktor Ullmann's opera, *The Emperor of Atlantis*, deals with freedom and the idea that humans should let nature run its course, rather than trying to control fate, as well as the disregard shown for human life during wartime. He expresses many of these ideas through musical technique as well as the subject matter of the opera. But due to censorship from the camp, as well as self-censorship from Ullmann, can this piece be a true representation of Ullmann's intentions?

54. Production Stage Management

Cathrin Winsor, Theater Department

Sponsor: Mr. John Ore

Stage managers are integral to the performing arts. They are the ones who facilitate communication between design areas, take notes in rehearsals and meetings, devise schedules, and much more. The position of production stage manager (PSM) is somewhat nebulous. Though many of their duties overlap with stage management, the main concerns for a PSM are the logistics of multiple productions. This role is usually undefined within the Southwestern University Department of Theatre, and its duties shared between faculty and student stage managers. It is being explored as a formal position this year in partial fulfillment of an Honors Capstone. The project will culminate in a guide for students and guest artists who work within the Theatre department. Many other universities have similar documents that they use to inform the various members of their department of their roles as well as the general guidelines associated with production. This project serves to fill a void by addressing the logistics of theatre production specific to Southwestern University.

CREATIVE WORKS AND EXHIBITIONS IN THE BISHOPS LOUNGE

55. Color Theory of the Experience of Painting for Artists and Audiences with Visual Impairments

Jessica Espinoza, Theater Department

Sponsor: Mr. Desiderio Roybal

The purpose of this project is to investigate the various methods by which blind and visually impaired people could paint and develop their own concepts of color. Our project had two components: color research and painting experimentation. We began last year, when I first began assembling a color chart. I researched each color on the spectrum, how they were made, and their cultural significance in various countries throughout history. For instance, ultramarine blue was discovered accidentally in a coal foundry, and became a much more affordable alternative to the costly lapis lazuli, which was more expensive to import than gold. For our painting experimentation portion (which has begun this semester), we decided to explore color and texture to make a visually accessible paint. Beginning with the three primaries, we mixed acrylic paints with various textured additives (sand for blue, sawdust for yellow, no texture for red.) We found that, by reaching in with tightly-pulled gloves, a visually impaired experimenter could determine the texture of each color. From these three primaries, we mixed secondaries, and have just completed a preliminary color wheel. My first full-fledged artwork will be an abstract exploration of the human voice. A model will recite a selected excerpt of text into a digital recorder and I, through repeated listening, will map out the various colors I perceive in the voice according to my color chart. Thus, I will assemble the palette based entirely on texture and sound.

56. The Arts Festival

Natalie Phillips-Perkoff, Anne Fenley, Music Department

Sponsor: Dr. Jason Hoogerhyde

The Arts Festival is an opportunity for the arts to bring the Southwestern campus and the Georgetown community together. The festival is scheduled to take place on April 2, 2011 from 11am- 5pm in the McCombs Campus Center and outside on the Academic Mall. We are collaborating with the Civic Engagement department to bring students from Duck University and the Georgetown Boys and Girls Club for the festival. Throughout the day, instrumental and vocal ensembles composed of Southwestern students and Georgetown ISD students will perform in the Bishops Lounge. Outside the McCombs Building, children and adults will have the opportunity to handle and play many musical instruments at the "Instrument Petting Zoo." This year we are also going to hold an art exhibit to allow SU students to showcase their work to the community. The Arts Festival also includes "Mind Over Music" lessons, free yoga and Zumba fitness lessons, face painting, and t-shirt decorating. Fifteen SU organizations will be hosting arts and crafts booths free to the public. The Arts Festival will also bring in Austin storyteller Donna Ingham to perform two shows for festival attendees. An integral part of the festival is the charity raffle, and this year's profits will benefit Mr. Holland's Opus, a program that provides musical instruments to children and schools in need. Raffle prizes include an 8GB iPod touch, a \$50 Walmart gift card, a \$50 gift certificate to Silver & Stone, and a \$25 gift certificate to Galaxy Cupcakes.

57. The Electric Cello

Will Hardy, Physics Department, Natalie Phillips-Perkoff, Music Department
Sponsor: Mr. Gerald Wade

We have designed and built an electric cello using a combination of existing ideas and our own innovations. An electric cello is certainly a departure from the heritage of classical acoustic instruments, but its purpose is the same as that of its acoustic counterpart: it is a tool for musical expression. By the nature of its electric design, such a cello can produce both traditional sounds and electronically influenced tones, broadening its expressive capabilities. This cello features a traditional scroll, fingerboard, and bridge, with a small solid wooden body, a thin outline in the shape of an acoustic body, and a piezoelectric pickup and preamp. We built the latter using standard individual electronic components, instead of buying a finished commercial unit. Since the pickup and associated electronics are responsible for translating string vibrations into an output signal, they have a large impact on the instrument's sound. This project has required both musical and technical expertise, and it serves as a tangible product of the many connections between physics and music, which are our respective majors.

58. Automated Microorganism Detector

Will Hardy, Mason Cradit, Marisol Frausto-Martinez, Jessilyn Massey, Heather Petty, Steven Solis, Tran Le, Physics Department
Sponsor: Mr. Gerald Wade

Although treating blood infections is a routine hospital procedure, the multi-step testing process is not ideal, requiring one to three days for many infections. Because of this delay, doctors often begin broad-spectrum antibiotic therapy prior to full identification of the bacteria, which can increase the potential for antibiotic overuse and development of drug resistance. Reducing the time required to discern the cause of a blood infection would allow more effective treatment. To improve the current method, an apparatus was designed and constructed based on Gerald Wade's 1979 invention (US patents 4250266, 4267276). It recorded changes in the electrochemical properties of samples containing microorganisms at concentrations that simulated a blood infection. Measurements were made using two stainless steel electrodes completely immersed in liquid growth medium below a gas headspace inside a culture flask. The electrodes were charged with low-amplitude current pulses, and the voltage response across the electrodes was recorded. By examining the change in measured voltage over time, the device detected microbial growth, as indicated by a sudden decrease in the voltage versus time curve. Results will be presented for three bacterial species: *Escherichia coli*, *Staphylococcus epidermidis*, and *Klebsiella pneumoniae*. Each of these produces a distinct growth curve that should make automatic identification possible. We will also discuss our experiments to explain the possible mechanism for this detector.

59. The Wall of Juarez: Expressions of Violence Against Women

Kristi Lenderman, Alejandra Benitez, Lizette Villarreal, Celia Campos, Francisca Lopez, Audrey Loukota, Eli Sreniawski, Alyssa Granado, Diana Wakasugi, Kappa Delta Chi Sorority Inc., Office of Diversity Education
Sponsor: Dr. Paige Schilt

The "Wall of Juarez" uses various modes of expression to create a symbol of the borders that divide our society. The goal of this student-based art is to create awareness surrounding the femicide that has been occurring in Ciudad Juarez for the past 15 years. Over 1,000 women have been raped, mutilated and murdered over the years simply because of their gender. These deaths have many connecting causes including the rise in maquiladores (factories), drug cartels, and corruption within the police force. Using stories of

women who have experienced the oppression and violence of their society, students and Kappa Delta Chi members have donated their time to create art work that reflects the feelings and experiences that the women have faced. Also expressed on the wall are the sexism and oppression the students have faced in their own communities. These artistic expressions will be placed on the wall as a means of giving a human aspect and an emotional dimension to the numbers that have been put forth. Facts and statistics projected on a screen and an audio of looped immigration stories told by the sisters of Kappa Delta Chi Sorority, Inc, are incorporated as an additional emotional dimension. This wall is a culmination of a year's worth of focus on the issue of "Violence Against Women on the Border," and will hopefully shed light on this important issue that is occurring and is sustained by our foreign policy and consumption of maquila-made items.

60. Sustainability in the Theater

Kira McEntire, Environmental Studies Department, Biology Department

Sponsor: Mr. John Ore

The arts are rarely associated with sustainability; in fact many aspects of art can be quite wasteful. One of the least sustainable aspects of theater is the lighting. Traditional theater lights are incandescent and consume immense amounts of energy. However, light emitting diode (LED) stage lights have made great strides within the past few years and are now more applicable than ever for artistic and sustainable use in the theater. This facilitates further sustainable possibilities by decreasing the amount of energy consumed and making on site production of energy to offset usage more plausible. The goal of this project is to determine the most cost efficient solar array needed to support a small theater venue and to promote sustainability in the theater. The case study would occur for Heather Hall, a small black box theater at Southwestern University. To determine the most cost efficient solar array needed, the energy production and cost effectiveness of two different types of silicon solar panels will be recorded and calculated. John Ore is currently heading a project to convert the lighting system in Heather Hall Theater to be completely light emitting diode (LED) lights and determine the cost savings. This is a companion project to determine the solar array needed to run an LED theatrical lighting system.

61. The Well-Tempered Angklung: Thai Instrument and Western Scales

Audrey A. Olena, Physics Department, Music Department

Sponsor: Dr. Bill O'Brien

The Southwestern University Physics Department has 42 angklungs (tuned hand-held shaker instruments in the idiophone family) from Thailand. The sound spectrum of each angklung and the primary frequency of each angklung has been determined. The ratios of pitches will be studied in order to determine the nature of the scale used by the Thai craftsmen who built the angklungs. The well-tempered Western 12-tone chromatic scale is based on a ratio of $2^{(1/12)}$ between the frequency of any pitch and the frequency of the half step pitch immediately below it; any such pattern in the ratios of pitches in the Thai scale will be identified and compared to Western scales. If the angklungs are tuned in the same scale as some other instruments, the observed ratio will not be the value of $2^{(1/12)}$ but closer to $2^{(1/8)}$. A Thai xylophone called the ranat ek is also contained in the Physics Department, and the ratios determined from the angklungs will be compared to the ratios of the keys' pitches. This research is presented to the general public in an interactive format. Volunteers will hold the angklungs and generate pitches which will aid a lecture in which the evolutions of various musical practices and how people in different cultures hear and understand music will be discussed.

62. A Journey in Music: A Developmental Timeline of a Songwriter
Jasmine SayGan, Communications Department
Sponsor: Mr. David Olson

My performance presentation is something I have been working on for over three years. It is a small sample portfolio of the songs I have written, primarily for solo vocals and guitar. This performance consists of six songs, each of which has had a significant effect on me as both a songwriter and as a person. The first is one of my initial attempts at songwriting (including guitar music), a piece called "Believe," written in July 2008. It addresses the often-apathetic nature of society and what one can do to combat against it. The second is "Leaving You Behind"(October 30, 2008), born from a less conscious and more free-flowing writing experience; it is an expression of casting away the stigmas of a bad relationship and also signifies my transition into college life. The third, entitled, "Hours" is about the mutability of time – I wrote it with my father in mind in May 2009, strangely almost exactly a year before he passed away. "Wait For You" (December 26, 2009) is my attempt at humor within a relationship setting, commenting a bit on the sometimes-whimsical nature of being dedicated to the one you love. "Where We Belong" from March 2010 is an experiment with a more whimsical sound and subject, imitating current artists like Priscilla Ahn and Ingrid Michaelson. Finally, "Do You Think of Me," my latest song from February 3 of this year, is a quieter, more natural expression of turgid emotions like fear, heartache, and social anxieties.

63. The Ugly and the Beautiful- Exhibition of Sculptural Art at Texas Sculpture Symposium
Lauraly Hernandez, Art and Art History Department
Sponsor: Ms. Mary Visser

This sculptural work is a study of, and meditation on, the relationship between psychological and physical states of being. Through the contortion and distortion of the human figure and the juxtaposition of such fragile forms with skeletal forms, I try to investigate the complex relationships we have not only with our own bodies, but also with abstract ideas such as death, love, sorrow, joy etc. This work revolves around the traditional medium of clay but also incorporates mixed media, such as real anatomical skeletal models. The work was previously exhibited at the Texas Sculpture Symposium in Lubbock, Texas, and is untitled as of yet because another skeletal figure is still being incorporated into the piece.

CREATIVE WORKS AND EXHIBITIONS IN THE JIM AND PAT WALZEL LOBBY

64. Through the Webs of Haussmann
Christine Harris, Art and Art History Department
Sponsor: Ms. Victoria Star Varner

Through the Webs of Haussmann is a three-dimensional drawing composed of parts of drawings, support rods and thread, exploring the interaction between orb spider webs and the urban planning designs of Baron Haussmann as metaphors for the connections between natural phenomenon and human behavior. In 1852, under the auspices of Napoleon III., Baron Haussmann reorganized the entire city of Paris into a grid system completely reinventing the pre-existing city. Spiders have been known to ban together to spin webs spanning two hundred yards. In particular, the orb spider builds a new web on a daily basis. The ambition for both these architects came from an underlying notion of creating a functional space for survival. In juxtaposing these two sources to create what amounts to dialogue between them, I hope to inspire others to broaden their understanding of their relationship to the natural world they cohabitate.

65. Rags III
Oil on canvas 2010



- Christine Harris, Art and Art History Department
Sponsor: Ms. Victoria Star Varner

Rags III is a large-scale abstract painting of a labyrinth of twisting lines inspired from shadows and wadded cloth rags to explore how color functions spatially in a painting. By using these common, low objects through the tradition of painting I hope to elevate them to the level of “high art.” Through the act of painting, I meditate on how painted atmospheres and the intensities of pigments can perform in a wide range of advancing and receding planes in pictorial spaces, and I think about time and our shifting relationship to its fluctuating presence in our lives.

66. Succulent
Concoctions
Oil on panel



- Jenna Foster, Art and Art History Department,
Sponsor: Ms. Victoria Star Varner

This painting is a reflection on the complexity of humans’ relationship to food and matters of sexuality – both of which are deeply intertwined with the way we understand and construct our bodies. Sexuality and food are highly commoditized, designed, and implicated by the complex power structures that support our culture. The painting *Succulent Concoctions* confronts the viewer with polymorphous, colorful forms that make reference to two sources: sexual organs and culinary concoctions. The moments of unaltered, thick paint are disrupted by geometric forms, which are illusions of sparkling white plastic wrap introduced to create tension and impose a structure to the undulating, metamorphic forms. I intend for the painting to ask the viewer to contemplate the complexity of the symbiotically personal and political framework for all things cultural, and in this painting, food and sexuality specifically.

67. Untitled: Still Life
Oil on Linen, 2010
35" x 48"



Forty Hours Later
Lithograph, 2010
11" x 15.5"

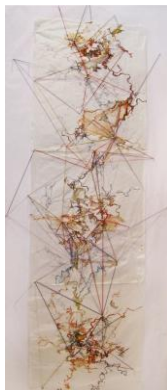


Hannah Adams, Art and Art History Department
Sponsor: Ms. Victoria Star Varner

My painting explores and transforms traditional still life painting by using modern objects and ten thousand point perspective, an Asian system of perspective. The composition and colors of this still life are styled after an Imperial Mughal painting, *Akbar, Jahangir, and Shah Jahan with Their Ministers*. By placing quirky commercial objects alongside traditional objects that would never be found together in life, the painting is transformed into a contemporary American still life (think American Pop culture meets traditional Mughal culture). By animating objects through bright colors, I create a fertile ground for imaginative interpretation and encourage personal narratives to develop from the odd combinations of objects, while maintaining the elegance and grandeur of traditional Mughal and western still life painting.

Prints related to this painting, such as *Forty Hours Later* (at left), are being exhibited at Evil Prints Gallery in St. Louis, Missouri, as part of the annual conference of SGC International, a printmaking conference for which I received a Fleming grant and support from the Patrons of the Fine Arts at Southwestern University.

68. Skinned Knees
Mixed Media, 2010
108"x 24"



Cows on Parade



Morgan Bailey, Art and Art History Department
Sponsor: Ms. Victoria Star Varner

"Skinned Knees" is a large-scale mixed-media piece exploring powers of observation and experimentation by using abstraction as a vehicle for self-representation or self-portraiture. I overlay a series of patterns, lines and shapes traced from my own scars, then use pins and strings to create a geographically-inspired, biological topography. Whereas the image looks abstract, it is made from highly representational tracings; therefore I question the nature of the self-portrait and the differences between abstraction versus representation. Inspired by biological curiosity and the narrative power of art, I strive to integrate scientific and artistic endeavors, which share the investigative powers of observation and evaluation. I apply those powers as metaphors for personal, global and communal perspectives.

The print *Cows on Parade* is being exhibited in March, 2011, at Evil Prints Gallery in St. Louis, Missouri, as part of the annual printmaking conference of SGC International. My presentation at the conference is supported by the Fleming Fund and the Patrons of the Fine Arts through the Office of the Dean of the School of Fine Arts.

69. Sea World San Antonio, June '95
Oil on canvas, 2010



Kirby Crone, Art and Art History Department
Sponsor: Ms. Victoria Star Varner

Sea World San Antonio, June '95 celebrates familial relationships, especially those of adoptive family dynamics, by abstracting colors and forms from family photographs. I treat my paintings with the same love my family lavished on me during my upbringing. The brush marks, the careful attention to the mixing of the paint, and the way I move the paint around the canvas - when combined - interpret the deep love and bonds of adoption. Through this method, I take the position that abstract painting can still express deeply personal ideas, like embracing the transformative and deeply loving nature of adoption through the medium of paint.

70. Growth of Pathological Pear Tree
Charcoal and Oil on Canvas, 2009
48" by 60"



Rebecca De Los Santos, Art and Art History Department
Sponsor: Ms. Victoria Star Varner

The painting *Growth of Pathological Pear Tree* began with a method of creating artwork based on an early 20th century European Dada practice called "chance aesthetics" as a way of starting a painting. For this painting I randomly selected multiple images found in books and from these I selected three on which to base my painting. They were 1) a figure of a pathological curve, 2) an image of growth according to the Eden model, and 3) Van Gogh's "Pear Tree in Blossom." I began by sketching the Eden model in charcoal and then placing tape over the canvas in the image of the pathological curve. After painting in response to the Van Gogh piece, I removed the tape to reveal the structure of the mathematical concept of a pathological curve. In doing so I am exploring the relation of mathematics as the unseen component of daily growth in nature.

71. Phlegmatic (at left, part of The Four Humors Suite)
Hand-colored woodcut, 2010
16" x 24"



Mary Scoville, Art and Art History Department
Sponsor: Ms. Victoria Star Varner

The Four Humors Suite prints challenge the common understanding of everyday sacred and secular symbols by fusing these symbols in unsettling ways. These odd combinations of symbols are accentuated visually by the equally unsettling mixture of a medieval woodcut technique with bright, modern colors executed in watercolor pigments. This strange combination of elements is an attempt to draw attention to the versatility of symbols as well as to point out the constructed nature of a symbol in society.

72. Filled Emptiness
Oil on canvas,
2010, 14" x 14"



Rachel Sellars, Art and Art History Department
Sponsor: Ms. Victoria Star Varner

For the painting *Filled Emptiness* I created a formal composition of a lush maroon silk fabric in a relatively simple triangle shape placed within a square composition. The triangular shape is set up so that one would expect something to be inside it, something one could reach into and grab. I intentionally left it empty to set up a paradox exploring the contrast between expectations and what is seen. I am also interested in what it means to create a painting that is both filled and empty; filled with the cloth and empty in that nothing is inside the cloth. Through this painting, I consider and share with others what it means for something to be “empty” and how we pre-fill things with our expectations.

POSTER PRESENTATIONS

73. Sea Spirits and White Condos: Environmentalism, Tourism, and Development in the Philippines

Kelly Holt, Sociology and Anthropology Department

Sponsor: Dr. Melissa Johnson

Last summer, from May 2010 to August 2010, I spent two months researching sustainable tourist development in Laiya, a coastal village in the Philippines. I used several ethnographic methods in data collection beginning with participant observation, one-on-one interviews, field notes, independent data collection from local libraries, newspapers or online articles, and lastly photography. From these methods I learned that sustainable development and tourism in Laiya was only one piece of a much larger puzzle comprised of several groups or persons working toward a variety of different personal goals that reflect each individual's vision for the future. Environmentalism was the common denominator in most of my encounters, whether the end goal was tourism, education, spirituality or residential development. Amongst each person's ambitions lay vestiges of an environmental consciousness or a desire to work alongside the health of the environment and the natural world. I discovered patterns of interconnectivity that exist in each person's vision of the future and witnessed the role of the natural world in shaping their pursuits. The activities and ideas that circulate in the depths of the Filipino jungle and on the shores of these villages are as reflective of the world we live in as the events and ideas experienced in Georgetown, Texas. The 'green' movement may be a worldwide phenomena, but it is discovered and practiced by different people in ways that reflect culture, identity, and place.

74. Upward Bound: The Program and its Students

Fernando Leon, Sociology and Anthropology Department

Sponsor: Dr. Melissa Johnson

For this poster, I use an auto-ethnographic approach to explore the ways in which Upward Bound Programs generate a subculture that supports students who might otherwise not be seen to be academic stars. Students are eligible to participate in Upward Bound if they fall under the governmental requirements: students have completed the 8th grade and are between the ages of 13-19, are from low-income families and/or potential first-generation college students, or the students are at high risk for academic failure. The targeted students receive tutoring in academic subjects they may need help in and are given information about college and financial aid. While all this is important for the students, the students create a strong sense of community among themselves that not only complements the development of knowledge and experience that Upward Bound creates, but also helps to develop students' confidence. These connections are sustained after participants complete the program and attend college in campuses around the country. These social ties facilitate Upward Bound alumni in navigating the often alienating cultures of college campuses that typically are dominated by and cater to elite populations. My analysis weaves auto-ethnography and my own experiences as an Upward Bound student with participant observation in two Upward Bound programs and interviews with a number of Upward Bound participants.

75. You Are What You Eat

Laura Mitchell, Sociology and Anthropology Department

Sponsor: Dr. Melissa Johnson

This poster focuses on food, globalization, and identity in Cusco, Peru. Globalization is a multi-faceted process that is often thought to impose western values and norms on local culture. However, as Richard Wilk argues in his book *Home Cooking in the Global Village*, it is a much more complicated process than initially understood, and not necessarily inherently negative. Using participant observation as well as formal and informal interviews in both family meal and restaurant settings in Cusco, I argue that food is not merely a means of sustenance, but also a material good that moves across ethnic and national boundaries. During this movement, it acquires different meanings in the process and serves as a way for Cusquenans to assert, maintain, and foster claims to socioeconomic status, indigeneity, nationalism, cosmopolitanism, place-based identities and senses of community. Thus globalization processes in foodways can serve to bolster local identities.

76. Call Latency in Anuran Breeding Call Surveys

Alex Hall, Animal Behavior Program

Sponsor: Dr. Ben Pierce

Concern over global amphibian declines has increased the use of amphibian monitoring programs such as the North American Amphibian Monitoring Program (NAAMP). The NAAMP protocol has been widely used to determine anuran (i.e., frog and toad) species distribution and relative abundance using volunteer-based auditory surveys of male breeding calls. The goals of this study were to monitor anuran breeding habitats in central Texas using the NAAMP protocol and to investigate the utility of a new measure of anuran calling behavior, call latency, the latency of a species to call after the beginning of a call survey. Four routes with ten listening sites per route were surveyed once a month between February and July from 2007 to 2010. Nine species of anurans were heard across all surveys and for six species, annual percent site occupancy changed significantly between years. Call latency and call index (a measure of calling intensity) varied significantly across species. For seven of the nine species, higher call index was associated with shorter call latency. Neither call latency nor call index differed significantly between surveys with low road noise and surveys with high road noise. Call index was not associated with wind velocity, but for two species, call latency was longer in surveys conducted under high-wind conditions than surveys conducted under low-wind conditions. Call latency is more reliably quantified than call index and is a simple measure that can be incorporated into the NAAMP call survey protocol.

77. Peroxisome-Defective Mutants in *Arabidopsis Thaliana*

Abbie Ornelas, Biology Department

Sponsor: Dr. Romi Burks

Arabidopsis thaliana is a useful model system for studying peroxisomes because peroxisome function in this plant is similar to humans, and *Arabidopsis* mutants can be representative of human peroxisomal disorders. Plant peroxisomes are responsible for fatty acid β -oxidation, branched chain amino acid catabolism, and metabolism of the plant hormone auxin. In this study, ethyl methanesulfonate-mutagenized *Arabidopsis* seedlings were screened for the defective fat metabolism and auxin responses characteristic of decreased peroxisome function. In order to map peroxisome-defective mutants, mutant *Arabidopsis* was crossed with another *Arabidopsis* accession. Progeny exhibiting a peroxisome-defective phenotype in the F₂ generation were selected as a mapping population. Molecular markers were developed to test the parental type of DNA present at

different locations on the chromosomes and search for a region with linkage. Once linkage was localized to a small region of a chromosome, DNA sequencing of candidate genes was used to find the exact base pair mutation within the mutant. To date, we have found mutations in the genes PXA1, CHY1, LON2, and PEX13. Studying the molecular and physiological effects of these mutations aids in understanding the contributions of each gene to peroxisome function.

78. Characterization and Mapping of Arabidopsis Thaliana Mutants Defective in Peroxisome Function

Violetta Vasquez, Biology Department

Sponsor: Dr. Andrew Woodward

An array of processes occur in plant peroxisomes, including fatty acid β -oxidation, peroxide metabolism, and the glyoxylate cycle. The peroxisomal conversion of indole butyric acid (IBA) to the active auxin IAA involves β -oxidation similar to peroxisomal fatty acid β -oxidation. The end product, IAA, is released from the peroxisome and causes inhibition of root elongation. The inability to convert auxin precursors to IAA makes plants immune to the effects of IBA when supplied exogenously. A mutant called MB154 was determined to be resistant to IBA, but sensitive to IAA. These characteristics suggested that the mutant may be peroxisome defective. Recombination mapping was employed to identify the mutation. The mapping population was selected based on the phenotype of growth dependence on exogenous sucrose resulting from the inability to metabolize seed storage lipids as a carbon source prior to germination. DNA was extracted from 13 MB154 F2 seedlings, and PCR with molecular markers was used to identify the mutation. Linkage disequilibrium was found at the south end of chromosome 5. After sequencing a candidate gene within this region, a G-to-A splice acceptor site mutation was found within the CHY1 gene previously implicated in peroxisomal branched-chain amino acid catabolism. We have conducted a CHY1 suppressor screen to identify second-site mutations that suppress the CHY1 phenotype, and are currently mapping these suppressor mutations to elucidate the role of CHY1 in general peroxisome function.

79. Expression of Cathepsin L in Murine Placental Cells Transformed by the Kirsten Sarcoma Virus

Morgan Bailey, Chemistry and Biochemistry Department

Sponsor: Dr. Kerry Bruns

When over expressed, the cysteine protease Cathepsin L is involved in increasing the metastatic potential of tumor cells. We were able to study this over-expression of Cathepsin L in Kirsten sarcoma virus-transformed murine fibroblasts (Kbalb) and 3T3 cells via analysis of the phospho-MAPK signal transduction pathway. This pathway may regulate Cathepsin L expression, and is also a primary target for the diagnosis of cancer cells. In this study, we separated nuclear, soluble and post-nuclear fractions via cell fractioning and visualized protein levels using Western Blot analysis. Initially, we observed greater Cathepsin L expression in soluble and post-nuclear fractions of Kbalb cells relative to the 3T3 cells therefore prompting an investigation of the phospho-MAPK signal transduction pathway. Further analysis revealed lower levels of phosphorlated MEK $\frac{1}{2}$ in the Kbalb cells relative to 3T3 cells which suggests that the phospho-MAPK pathways are less active in the Kbalb cells. The results of this experiment were unanticipated in that the transformed Kbalb cells exhibited lower levels of active MEK $\frac{1}{2}$, which conflicts with the understanding of the current model. Further investigation may be necessary to determine more specific results.

80. Synthesis and Testing of Bovine Lactoferricin Derivatives Against Escherichia Coli and Staphylococcus Aureus
Steven Solis, Chemistry and Biochemistry Department
Sponsor: Dr. Kerry Bruns

Lactoferricin has been shown to have strong antibacterial properties against microorganisms such as Escherichia coli (E. coli), Staphylococcus aureus (S. aureus), and Candida albicans (C. albicans) and is one of many antibacterial peptides. Antibacterial peptides are an essential part of the specific immune system and directly handle invading pathogens at the source of invasion. Studies have shown that tryptophan and arginine residues are the key residues for the antibacterial activity of lactoferricin; we want to determine the effects of adding tryptophan residues to the ends of the core bactericidal portion of bovine lactoferricin. We made four peptides—one nonapeptide and three 11 amino acid peptides—using solid-phase peptide synthesis. The sequences for the peptides we synthesized are KKMRWQWRR, WWKKMRWQWRR, KKMRWQWRRWW, and WKKMRWQWRRW; we designated these peptides Lfcin1 through Lfcin4, respectively. The peptides were tested against E. coli and S. aureus in order to determine the differences in their antibacterial activities against a gram-negative and a gram-positive organism. Seven different concentrations of each peptide were tested to determine their minimal inhibitory concentration (MIC) and minimal bactericidal concentration (MBC). Based on the results we have thus far, we have shown that Lfcin 2 and Lfcin 3 have MICs of 30 μ M for S. aureus, and Lfcin 2 has a MIC of 40 μ M for E. coli.

81. Attempted Preparation of Bis-anthrapyrazoles with a Polyglycolic Spacer Arm
Jodi Kirk, Chemistry and Biochemistry Department
Sponsor: Dr. Sandra Loudwig

Anthrapyrazoles are planar, heterocyclic, DNA intercalating agents. They are being studied as possible alternatives to anthracyclines, which are highly cardiotoxic, as anti-tumor agents. The linking of two anthrapyrazoles for the formation of a bisanthrapyrazole is thought to increase the efficacy of the drug to a greater extent. By having two anthrapyrazoles linked together by a spacer arm, if one anthrapyrazole separates from the DNA, the other attached anthrapyrazole can help pull it in for reintercalation creating higher cytotoxicity. Such molecules are called bis-anthrapyrazoles and previous studies suggested that increasing their solubility should increase their activity. This can be achieved by using a polyglycolic linker arm. Since most chemotherapeutics are injected into the blood stream, this will help them be carried easily through the body. Three derivatives of anthrapyrazoles were synthesized. Although the purification of anthrapyrazole derivatives is very challenging, those molecules were successfully purified by column chromatography. There are several ways to couple the anthrapyrazole to the linker arm. One method, coupling the azide derivative with a triglycolic acid linker arm and triphenyl phosphine, was attempted several times, yet without success. One further derivative of the anthrapyrazole needs to be synthesized in order to attempt a variety of other coupling reactions. We expect to spend quite a bit of time on the purification, and new techniques, such as H.P.L.C. (High Performance Liquid Chromatography,) will be explored.

82. Direct Preparation of Aryl Selenium Compounds from Electron Rich Aromatics
Travis Valadez, Chemistry and Biochemistry Department
Sponsor: Dr. Lynn Guziec

Few methods are available for the direct preparation of diaryl selenides, although diaryl selenium compounds are recognized as important antioxidants and inducers of reductive enzymes. We have developed a new synthesis of activated aromatic selenides in which electrophilic addition of selenium dioxide to activated aromatics in the presence of acid

yields the triaryl selenonium trifluoroacetate. These selenonium salts may be purified by trituration. Pyrolysis of these salts affords the corresponding diaryl selenides, which can be oxidized to the selenoxides and selenones. In addition, we have developed a new method for the purification of triaryl selenonium trifluoroacetates by anion exchange with tetraphenylborate. These triaryl selenonium tetraphenylborates may be purified by recrystallization.

83. Creating Android Applications

Erick Bauman, Math and Computer Science Department

Sponsor: Dr. Rick Denman

The Android platform is quickly becoming a large and powerful force in the mobile market. Applications developed for this platform have the potential to reach millions of people and provide entertainment or helpful services. There is a great amount of potential in this platform. I took an independent study last year, and I am taking one this year for Android application development. I posted one application to Android Market and am working on another one. The application that is currently on the market, Elementary Row Operations, has over 5000 downloads and has many positive reviews. The application I have made has already reached many users and has hopefully proved useful to them. Providing high-quality applications is central to the strength of mobile platforms, and individuals can contribute to this, one application at a time.

84. Turning Traditional Hands-On Science to Autism-On Science

Shelby Lujan, Education Department

Sponsor: Dr. Michael Kamen

Research has told us over the past few decades that students who participate in hands-on science inquiry investigations throughout grade school develop a stronger conceptual knowledge of science concepts and topics. Research has also told us that students with autism and autism spectrum disorders benefit from hands-on investigations with real world experiences. However, these experiences have to be monitored due to sensory and motor under or over sensitivities that are a part of the disorder's symptoms. In an inclusive setting classroom, where typically developing students and students with special needs learn and work together in a single classroom, creating these experiences can sometimes be a challenge for a teacher who is trying to teach to both student levels, and still trying to use hands-on investigations and experiences to teach a particular science concept. My research looks at how educators can adapt and modify hands-on investigations in their classrooms, so typically developing students and students with autism in inclusive settings can participate in the same types of investigations without being segregated from one another. My research will hopefully lead into the reproduction of these investigations, so my peers will be able to see first hand the types of experiments that will be accommodating for all students while still working towards building strong conceptual learning.

85. Science Experiment Accommodations and Modifications for Students with Special Needs

Kelsey Rodriguez, Education Department

Sponsor: Dr. Michael Kamen

The present research focuses on accommodations and modifications for students with special needs. I am especially interested in accessibility for students with physical limitations; specifically, ways that allow students to be able to access hands-on science lessons regardless of their exceptionality.

86. Astronomy in Elementary School
Lisa Scott, Education Department
Sponsor: Dr. Michael Kamen

Many students are taught little about astronomy in their first years in school, and sometimes they are taught information that is not correct. For this presentation I looked at age appropriate lessons about astronomy. This included looking at lessons that while grade appropriate were not scientifically accurate. I also looked at how to make these lessons fun and interesting for the students so that they are engaged and active participants in the lesson. Astronomy includes stars and planets as well as other objects out in space. I looked at ways to make these concepts understandable, accurate, and fun for students, especially those in younger grades. I would like to build a comprehensive outlook of what makes an astronomy lesson that is grade appropriate as well as scientifically accurate. This will include examples of not only what to do in a classroom when teaching astronomy, but also what should not be done when teaching astronomy.

87. Accessibility in Hands-on Science Teaching
Julia Strange, Education Department
Sponsor: Dr. Michael Kamen

Much progress has been made toward full accessibility in the classroom for students with disabilities. However, have today's teachers, school districts and curriculum creators made all items as accessible as possible, especially today's hands-on science tools? This research examines current science practices for accessibility for students with disabilities. In addition to a review of the literature, various elementary science curriculums and supplies will be examined. There will also be interviews from teachers regarding his or her opinions on how accessible the hands-on science lessons were, as well as ways in which they can be approved.

88. Life of An Auditor
Julia Stanzer, Economics and Business Department
Sponsor: Dr. David Gaines

I reach over to turn off my blaring alarm and slowly roll out of bed to get ready for work. It is 6:00 a.m. and I have yet to get used to these early morning hours. Truthfully, I would not mind waking up so early for work every day, but the forty-five minute drive in rush-hour traffic does make it less appealing. In Spring 2010, I interned as an auditor at Deloitte & Touche, LLP in order to see if life as an auditor would be an appealing career choice. I must admit, the idea of working seventy-hour weeks scared me! However, the internship was a great learning experience and I enjoyed every minute of it. An external auditor works for an independent public accounting firm (such as Deloitte) and is hired by various clients to perform an audit. Performing an audit consists of expressing an opinion on whether the company's financial statements are free of material misstatements, whether due to fraud or error. During my internship, I was able to audit five clients in the oil and energy industry. Each client and its experiences varied due to the engagement teams, the company itself, and the time frame of the audit. My work consisted of recreating financial statements, contacting people for confirmation on accounts receivable, testing assets to check for materiality, and typing out the Form 10K.

89. "Birds Don't Pay Taxes": Environmental History and Discourse of the Balcones Canyonlands Conservation Plan
Charlotte Huskey, Environmental Studies Program
Sponsor: Dr. Laura Hobgood-Oster

One prominent and constant environmental issue is the dilemma between habitat conservation and urban development. The conservation-development dichotomy constitutes an even greater concern in the United States, where land use per capita is significantly higher than in other nations. In attempts to explore this dilemma, my research investigates the environmental discourse and history surrounding the Balcones Canyonlands Conservation Plan (BCCP) in Central Texas during the late 1980s-mid 1990s. The BCCP is a regional multispecies habitat conservation plan serving under a 30-year federal permit granted by the U.S. Fish and Wildlife Service (USFWS). This habitat conservation plan functions under Section 10(a) of the Endangered Species Act as an "incidental take," permitting Central Texas government agencies, developers, environmental organizations, and private landowners to collaborate and structure a balance between conserving Austin's endangered species habitat and authorizing development. This case study will demonstrate how these numerous diverse agencies cooperated and compromised to find a balance between the conservation of endangered species habitat and the inevitable development pressures from Austin's urban sprawl. In addition to unveiling the environmental history of the BCCP, I will also examine the Interrelations between two significant environmental players of this habitat conservation plan: The Nature Conservancy of Texas and Austin Earth First!. By focusing on these two distinct environmental groups, I aim to emphasize the significance of radical environmentalism in the overall conservation planning process of the Balcones Canyonlands.

90. Effects of White-tail Deer Overabundance on Avian Abundance, Diversity, and Reproductive Success in Central Texas
Charlotte Huskey, Kalyn Chacon, Environmental Studies Program
Sponsor: Dr. Jinelle Sperry

The goal of this research was to analyze the effects of white-tailed deer (*Odocoileus virginianus*) overabundance, and the associated over-browsing of vegetation, on avian diversity, abundance, and reproductive success. This study took place during the April-July 2010 bird breeding season in northwest Austin, Texas, on sites with and without active deer management. The site with deer management is a privately owned ranch with approximately 20 ac/deer. The sites without deer management are located on the Balcones Canyonlands Preserve (BCP) and have approximately 2.1 ac/deer. To determine if deer browsing affected avian habitats, we conducted habitat assessments on all sites. Avian point counts were conducted to estimate diversity and abundance. Reproductive success was determined by finding and monitoring nests of all open cup nesting birds. As predicted, we found higher numbers of seedlings and saplings on the ranch, where deer populations were reduced, compared to the BCP sites. On both sites, nests were in areas with fewer juniper trees and more deciduous seedlings, indicating a preference for areas with deciduous regeneration, particularly on BCP sites. For Northern Cardinals (*Cardinalis cardinalis*), the most common species, we found that nest survival was similar between sites but additional data is needed to verify that trend. In the 2011 birding season we aim to acquire additional nesting data for all species, particularly Northern Cardinals, and to be able to conduct detailed nest survival analysis. We also plan to examine mechanisms responsible for any changes in Northern Cardinal reproductive success by monitoring nestling provisioning and growth rates.

91. Green Party Politics and Impacts: German Realities, US Possibilities

Leah Jones, Environmental Studies Program

Sponsor: Dr. Laura Hobgood-Oster

The Green Party has been highly influential over recent decades in shaping national policy and mainstream ideologies in Germany. This paper seeks to examine how a radical green discourse can be integrated into mainstream politics and culture to create effective political and ideological change. Using Germany and the Green Party as a case study, I explore the Green Party's influence in enacting current environmental policies, specifically agriculture and food sustainability policies, and show how the ideologies associated with the Party have been integral in shaping a general environmental ethic and ecological consciousness amongst German citizens. Lastly, I look at some of the ways in which a radical green discourse can and is being mainstreamed in the United States, specifically through a growing emphasis on local food systems and urban sustainability projects. My research is based on both a literature search and a semester of study abroad in Germany. From that first-hand perspective I am able to integrate primary source materials and direct cultural experience with the literature review in order to yield more accurate outcomes for the research.

92. Urban Gardens, Environmental Justice, and Sustainable Cities

Allen Smith, Environmental Studies Program

Sponsor: Dr. Laura Hobgood-Oster

Urban gardens have sprouted up in an increasing number of places throughout the last decade as a result of numerous sustainability initiatives related to food and the environment. The interdisciplinary nature of any study related to urban gardening highlights the importance of the interdisciplinary nature of sustainability issues, especially given the critical link between urban gardening and environmental justice. Areas including social justice, nutrition, law, urban planning, anthropology and sociology can all factor into the vitality of urban gardens, and representatives from each of those perspectives are called to collaborate in creating sustainable cities that contain an abundance of effective urban gardens. Three main themes surrounding the effects of urban gardening include: providing immediate access to healthy food for the lower class while providing a way of reducing overall poverty in an urban setting; reducing the overall carbon footprint of food; and increasing livability of cities, which, from a number of factors including reduced crime and better land use, encourages citizens to live a more sustainable lifestyle.

The City of Detroit provides a case study for urban gardens as a way of re-vamping/re-structuring the collapsed economy of the area, and points to the effectiveness of urban gardens in providing the framework for sustainable cities. While modern urban settings do not allow us to immediately connect with the land in the same way we did 500 years ago, urban gardens are a critical tool in increasing the livability of large cities and maintaining sustainable urban spaces.

93. Needs Based Assessment of East Austin to Create a Sustainable Public Health Initiative

Courtney Eason, Kinesiology Department

Sponsor: Dr. Scott McLean

The UT Elementary School is a charter school serving five zip codes that are predominately Hispanic and in the low socioeconomic status in the East Austin area. The prevalence of being overweight and obese among third through fifth graders at UT Elementary School is 51 percent, compared to the national rate of 32 percent. The Healthy Families Initiative has been in effect for the past three years, and has been responsible for lowering the prevalence from 63 percent. As successful as this initiative is, children spend most of their time outside

of school, so a sustainable health intervention project outside of the school setting that involves the entire family is essential. Our purpose is to create a needs-based assessment for health intervention beyond the limited time children spend in school, and to create a sustainable intervention program using the UT Elementary's Healthy Families Initiative as a positive example. We completed a needs based assessment using observation of The Healthy Families Initiative afterschool program, questionnaires sent out to pediatricians, parents, and physical education teachers, and a project done by children of photographs of obstacles to physical activity in their community (for example no sidewalks, or gang activity at the local park making it unsafe). Using the data collected, the needs of the community will be assessed and a sustainable program to improve the physical health and fitness levels of East Austin residents will be put into place.

94. The Process of Sustainable Development Through the Creation of a Medicinal Garden In Tola, Nicaragua

Mallory Forsyth, Biology Department
Sponsor: Dr. Scott McLean

The Camilo Ortega Saavedra Health Center in Tola, Nicaragua, has pharmacy shortages due to high demand and limited funding. The purpose of the present study is to use sustainable development practices to create a medicinal community garden located at the clinic and a parallel support system to help alleviate the clinic's problems. Traditional medicine is an accepted practice in Tola, but medical knowledge and access is limited. The use of a garden and supporting community groups would increase overall understanding of the benefits of traditional medicine. Although implementation of a sustainable development program is usually a long-term process, the current project represented efforts lasting 11-weeks. The contents of the garden were chosen based on availability and the proven medical effectiveness of plants determined from research and interviews. Members of an indigenous community were chosen to form a community group to sustain the garden and serve as educators because of their interest, understanding, and experiences with natural medicine. Apart from knowledge transfer between members and the surrounding community, the group transformed into an indigenous support group. The contributions of time and resources from the health center and community demonstrate the initial success of the development project. Sustainability of the project cannot be quantitatively measured at this early stage but the forecast is promising. Sustainable development relies on community interest and community involvement and this project successfully incorporated both aspects. There are opportunities for expanding the garden and creating smaller, more localized gardens for those with limited access to the health center.

95. The Effectiveness of the Critical Power Model on Prescribing Elements of Intermittent Exercise

Patrick Keenan, Kinesiology Department
Sponsor: Dr. Jimmy Smith

The present study aimed to use individual critical power models to prescribe elements of intermittent exercise. Ten male athletes performed three phases of testing: 1) familiarization, one learning trial establishing a starting point for subsequent tests; 2) establishment of individual W/t relationship, responses from 4 exercise bouts eliciting fatigue in 2-15 minutes were fit to this equation: $t = W' / (W - WCP)$ [Eq 1]; 3) intermittent exercise, 3) exercise bouts with predicted number of work/recovery cycles ($n = 5$) of 60/60 s, 120/60 s, and 60/120 s prescribed using $n = W' / ((Ww - WCP)tw - (WCP - Wr)tr)$ [Eq 2] with estimates of W' and CP from phase 2. One sample t-tests compared number of cycles completed to the predicted value for each exercise condition. A repeated measures ANOVA compared the number of work/recovery cycles completed across conditions. The mean (sd) completed work/recovery cycles were 4.64 (0.47), 4.65 (1.10), and 3.70 (0.80), for the 60/60 s, 120/60

s, and 60/120 s trials, respectively. Results of the t-tests suggested that actual values were not significantly different from those predicted for 60/60 s and 120/60 s, but were for 60/120 s. Results of the ANOVA suggested that the mean completed work/recovery cycles was significantly different across conditions. These results suggest that [Eq 2], using estimates of W' and CP from [Eq 1], can be successfully used to prescribe elements of intermittent exercise bouts that contain relatively short recovery periods.

96. Active v. Passive Recovery: The Most Effective Level Relative to Swimming Performance

Kassie Krusely, Kinesiology Department

Sponsor: Dr. Scott McLean

To examine the effects of different types of recovery on subsequent swimming performance four male (ht, 174.4 ± 8.1 cm; mass, 73.5 ± 5.6 kg) and five female (ht, 164.1 ± 7.9 cm; mass, 65.0 ± 4.9 kg) collegiate swimmers participated in this study. Participants completed three randomly assigned sessions that consisted of a 100-yd maximal-effort swim (TT1) followed by a 10-min recovery at a specified level of intensity (PAS, ACT50, ACT65), and a subsequent 100-yard maximal effort swim (TT2). The PAS recovery condition involved passively resting on the side of the pool, while ACT50 and ACT65 involved swimming at intensities corresponding to 50% and 65% of each individual's average velocity for a 100-yd sprint. HR and RPE were recorded after TT1 and TT2. Performance time, HR and RPE for each condition were compared using a repeated measures ANOVA. There was a significant difference among the means of change in performance time ($F(2,16) = 5.34$, $p = 0.02$), with the recovery type accounting for 40% ($\eta^2 = 0.40$) of the change. Mean change in performance time was 1.18 s higher in the PAS condition than in the ACT65 condition ($p < 0.05$), while only 0.49 s higher than the ACT50 condition. While the majority of the participants added time in TT2 across conditions, they added less time after the ACT65 recovery condition. An active recovery intensity corresponding to 65% of an individual's average velocity for a 100-yd sprint may be more beneficial to subsequent performance than passive recovery.

97. The Effect of Kipping on the Performance of a Pull-up

John Prater, Kinesiology Department

Sponsor: Dr. Scott McLean

The kipping pull-up is an exercise derived from the gymnastic glide kip. While the strict pull-up relies on the strength of the upper body to gain height, the kipping pull-up incorporates hip flexion to produce the force to raise the body. The purpose of the present study is to analyze the effect of kipping and to determine if this offers an advantage for participants less able to complete a strict pull-up. Seven novices (ages 24-54 with <6 months CrossFit experience) and nine advanced participants (ages 13-47, with >6 months CrossFit experience) completed three trials of each pull-up; filmed using a digital camcorder at 60 Hz. Body landmarks were digitized for computation of the center of mass (COM) so as to measure Peak vertical velocity (PVV) and Peak vertical acceleration (PVA). A 2x2 (group x technique) mixed-model ANOVA was used for statistical analysis of the averaged PVV and PVA. The kipping pull-up produced ~50% more PVV and PVA for both skill levels ($F(1,14) = 134.4$, $p > 0.001$) ($hp^2 = 0.906$) and ($F(1,14) = 60.9$, $p > 0.001$) ($hp^2 = .0.813$), respectively. There was no interaction between skill levels. Considering Newton's second law, the increase in PVA means an increase in vertical force. Several novices could not execute a full strict pull-up but could execute a complete kipping pull-up because of this increase. Because of the lack of differences in skill levels, the kipping pull-up could be used to develop upper body pulling strength in individuals unable to perform a strict pull-up.

98. Film Music and Its Effects on the Perception of Western Music

Andrea Plybon, Music Department

Sponsor: Dr. Lois Ferrari

As part of my honors project and capstone, I composed music for a segment of the silent film *The Thief of Bagdad* (1924). In the fall semester, I composed the music that was performed on February 19th by the Southwestern University Orchestra while the film was shown in conjunction. For this, I went through a process of dividing the segment of film into scenes, timing points in each of the scenes, writing short scores for all of the scenes, and then orchestrating that music out into the orchestral piece that was performed. In the spring, I worked with the orchestra in perfecting the timings with the film. In addition to composing the music for the segment of film, I held a panel conversation regarding film music and its effects on the cultural perception of western music. For this I invited several panelists including Dr. Donald Hunsberger, Dr. David Neumeyer, George Oldziey, Brian Satterwhite, and Jon Slott to share their experience, knowledge, and opinion on the manner to create a basis of understanding and to expand the purpose of the writing and performance on what I have written.

99. Using Sound to Desalinate Water

Thomas Newman, Physics Department, Science Program

Sponsor: Dr. Steve Alexander, Mr. Gerald Wade

This project's focus has been to design, build, and test a pump that uses a 135-watt piezoelectric transducer to push a salt water solution through a reverse osmosis filter by manipulating the standing waves in a tube. Essentially, it is a pump that utilizes sound waves to move water. Because of drought and reduced aquifer supplies, water is an increasingly scarce commodity in the West and in a number of areas of the world. For this reason ocean desalination projects are seen by many communities to be the only reliable way of obtaining a reliable supply of fresh water. Our project examines a novel type of pump that has only a few moving parts - which should make it quite robust. Since the waves in the tube are at resonance, it is expected that all water movement will be very efficient and that this will lead to a design that requires less energy than conventional pumps. If the energy needed to run this system is as low as we expect, another application of this technology could be a personal, portable water desalinization unit/purifier for campers or rural locations.

100. Electronic Blocks

Thomas Newman, Jean-Pierre Murenzi, Yvette Niyomugaba

Physics Department, Science Program

Sponsor: Dr. Steve Alexander, Mr. Gerald Wade

A multitude of electrical devices that function as common sensory or power regulating controls, such as ones found in alarm systems or light sensitive units, are often self-contained by their modes of operation. However, these electronic devices are comprised of specific electrical components that can simplify the complexities found in numerous such devices. Assembling a method that integrates the simple components into their larger constructs allows individuals, students in particular, to establish a well-founded understanding of the individual components (hereafter referred to as E-Blocks) and how they interact in the creation of more complex devices. This work focused on the construction of E-Blocks in a way that provided an approachable process for those interested in exploring applications of electronics. Simple digital circuits were used to build E-Blocks that were later utilized in designing and testing ways in which digital logic circuits operate. The purpose of this was to simplify how future students would go about understanding the fundamental operations of digital circuitry (demonstrated by the E-Blocks)

– i.e. how the fundamental components constituted the functioning of more complex devices. From there, a variety of devices could be built and understood.

101. The Effects of Disclosure and Controllability of Stigmas on Likeability
Brooke A. Blomquist, Steffani L. Willems, Mandi M. Laurie, Psychology Department
Sponsor: Dr. Traci Giuliano

Applying for a job can be an anxiety-provoking process for applicants with physical disabilities because they must decide how to address their disability in order to reduce potential bias. Although previous research has focused on self-disclosure as a social strategy for people with controllable and uncontrollable stigmas (e.g. Hastorf et al., 1979), little research has investigated perceptions of individuals with disabilities when another person discloses the information pertaining to the stigma. Thus, the purpose of the present study was to determine the influence of self-disclosure or other-disclosure of controllable or uncontrollable stigmas on perceptions of job applicants. Based on previous research (Hastorf et al., 1979; Hebl & Kleck, 2002; Ward & Brenner, 2006), it was predicted that applicants with controllable disabilities would be perceived more favorably if they self-disclosed a stigma, whereas applicants with uncontrollable disabilities would be perceived more favorably if others disclosed the applicant's stigma. To test this prediction, a two-way between-subjects design was conducted in which 96 college students (44 men, 52 women) read one of four application packets including a personal statement or a letter of recommendation addressing the applicant's controllable or uncontrollable disability. As predicted, job candidates with uncontrollable disabilities were perceived more favorably than were job candidates with controllable disabilities. Contrary to the hypothesis, job candidates who used other-disclosure were perceived more favorably than were job candidates who used self-disclosure. The findings of the present study suggest that a bias exists against people with controllable disabilities which affects their probability of being hired.

102. Retention of Learned Associations Through Metamorphosis in the African Claw-Toed Frog.
Michele Comerota, Mary Vadakekalam, Psychology Department
Sponsor: Dr. Jesse Purdy

During the process of metamorphosis, an organism experiences radical structural change, but how dramatic the changes are to the nervous system is not as well known. Learned associations have been shown to survive metamorphosis in insects (Blackiston, Casey, & Weiss, 2008), but it has been more difficult to demonstrate in amphibians, particularly frogs. In the current experiment we sought to test whether African clawed-toed frogs could retain a learned association. Tadpoles received paired or unpaired presentations of a 30 second low frequency sound. Twenty sec into the sound, a model heron was dropped into the tank and moved around the tank for 10 sec. Subjects received four trials per day for ten days. Thirty days after conditioning trials as tadpoles, one half of the paired group received an additional sixteen paired presentations of the sound and simulated attack and the other half received unpaired presentations of the sound and simulated predatory attack. In addition to these four groups, we also had two groups of tadpoles that were raised until they were adult frogs and then these animals received either paired or unpaired presentations of the sound and predatory attack. By using this six group design we were able to test for interference affects, savings effects, as well as assess whether tadpoles or frogs were able to associate the CS and US more readily. Results are considered in light of their significance for understanding the role of learning in adapting to a changing environment and the neuromechanisms underlying those learned associations.

103. I Kissed a Girl: Perceptions of Blame and Relationship Stability Following Infidelity
Rebecca F. Eisenberg, Martha A. Simon, Jessica D. Alonzo, Psychology Department
Sponsor: Dr. Traci Giuliano

Even though many believe that infidelity can be harmful to romantic relationships (Buunk & Dijkstra, 2004), perceptions of infidelity are not universal and individual definitions vary. For example, as Randall and Byers (2003) found, individuals are more likely to consider sexual intercourse, but not kissing, to be cheating, and women are more likely than are men to perceive kissing as cheating. To explore perceptions of infidelity, 72 college students (36 women, 36 men) recorded their reactions to scenarios in which a college-aged woman involved in a long-term heterosexual relationship either kissed or had sex with another man or another woman. As predicted, participants blamed the target more when she kissed a man ($M = 4.80$) than when she kissed a woman ($M = 4.14$), $F(1, 60) = 5.10$, $p = .028$, but equally whether she had sex with a man ($M = 4.61$) or with a woman ($M = 4.92$), $F(1, 64) = .701$, $p > .05$. In addition, a main effect for infidelity type indicated that the target's relationship was perceived to be more threatened when she had sex with someone than when she kissed someone $F(1,60) = 6.88$, $p = .011$. Finally, participants rated the target as being more physically attracted to her cheating partner when that person was a man ($M = 5.74$) rather than a woman ($M = 4.97$), $F(1, 64) = 68.18$, $p = .006$. Taken together, our results reveal a more accepting view of women's intimacy with other women than previously found (c.f., Desouza, Solberg, & Elder, 2007).

104. Sexy-time Shopping: Multi-party Shopping and Consumer Behavior of Women at Novelty Stores
Alex Burbey, Kelly Finn, Hana Morton, Psychology Department
Sponsor: Dr. Jacqueline Muir-Broadbush

The acceptance of sexuality is thought to be gender-specific, favoring men, while women are expected to repress any sexual desire that steps outside of society's norms (Leiblum, 2002). In the present study, the relationship between the presence of multiparty shoppers and women's purchasing behavior was investigated in an adult novelty store. Based on previous literature suggesting that public displays of feminine sexuality are discouraged by society (Berkowitz, 2006; Leiblum, 2002; Tolman, 1994), it was predicted that although more women would enter the shop in groups, women alone would be more likely to make a purchase. In a naturalistic observation study using a 2x2 categorical design, 65 female participants were observed from the parking lot of a female-targeted adult novelty store in Central Texas. As predicted, women alone (72.22%) were more likely to make a purchase than women in groups (40.43%). These findings suggest that women may not only feel threat of judgment by strangers, but amongst their peers as well. These data offer an interesting contribution to a body of research involving individual and societal perceptions of feminine sexuality, and could even be useful for novelty stores in marketing products or increasing comfort amongst their shoppers. Future studies could include taking a deeper look at gender differences in shopping for erotic paraphernalia, and looking at individual attitudes about such experiences.

105. The Ultimate Predator: A Combination of Facial Characteristics of Vertebrate Predators
Kelly Finn, Psychology Department
Sponsor: Dr. Jesse Purdy

Many predator and prey animals are in a constant evolutionary arms race, each struggling to more proficiently stay hidden from and detect the other. It is thought that prey animals may use certain characteristics of a predator's face for recognition. It has been shown that manipulations to a predators facial features such as eyes or mouth can increase or

decrease fear responses in prey (Scaife, 1976). In order to have a better idea of which features may act as such cues and to understand which of these features are most universal amongst predator animals, an “average predator” was created. Sixty-four pictures of vertebrate predators (16 mammals, 16 reptiles, 16 fish, & 16 birds) were morphed together using Creaceed’s Morph Age Pro 4.0.7. The pictures were morphed together two at a time. The major features of the animals’ faces were outlined while the program determined an intermediary curve configuration of the two. The program then warped the original pictures into this configuration and blended them together. This process allowed for not only averaging of pixels, but also averaging of curves and facial structures between animals. The most salient facial features of the final picture were determined. These offer insight as to which aspects of a predator’s face may be most important and effective as recognition cues for prey. This information sets the stage for many future studies on predator-prey recognition and considering specific facial features as fear stimuli.

106. Communication Breakdown: Parental Openness as a Predictor of Attitudes Toward Abortion and Public Sex
Sarah Johnson, Psychology Department
Sponsor: Dr. Traci Giuliano

The present study explored the relationship between parental openness and attitudes toward abortion, as well as the relationship between parental openness and attitudes toward public sex. Specifically, we hypothesized that there would be a positive relationship between parental openness and attitudes toward abortion, and that there would be a negative relationship between parental openness and attitudes toward public sex. To test these relationships, we distributed questionnaires to 163 participants (106 women, 56 men, and one unreported), designed to assess attitudes toward various aspects of sexuality at a small, predominantly White liberal arts university in central Texas. Contrary to the first hypothesis, there was no relationship between parental openness and attitudes toward abortion. Consistent with the second hypothesis, however, the more parental openness participants reported, the less likely they were to be supportive of public sex. Our results suggest that there may not be harm in parents educating their children about human sexuality, because greater parental openness predicts more negative attitudes toward public sex, which can be defined as risky sexual behavior.

107. Change Blindness: Detection of Change in Magnitude and Belongingness
Fernando Romero, Colin McCulloch, Derek Kuiper, Psychology Department
Sponsor: Dr. Jacqueline Muir-Broadbudd

Many times individuals fail to acknowledge changes in their visual field (Durlach, 2004). This inability to detect change in one's environment has become known as change blindness (Rizzo, Sparks, McEvoy, Viamonte, Kellison, & Vecera, 2009). The current study sought to understand how both magnitude and belongingness of an object affects an individual's ability to perceive change in a scene. As part of a 2 (Magnitude: Foreground or Background) x 2 (Belongingness: Low Intensity of Change or High Intensity of Change) between-subjects design, 60 undergraduate students (31 women, 29 men) viewed (for 1 second) a photograph of a room containing two blue laptops on a table and one blue picture frame on a wall. A two-way between subjects analysis of variance (ANOVA) was used to analyze individuals' ability to detect changes of the laptop or picture frame stimuli in the target photograph. For magnitude, as predicted, individuals were able to perceive changes in the picture frames ($M = 1.06$), when they were placed in the foreground of the photograph ($M = 1.93$), $F(1, 56) = 112.66$, $p < .01$ and perceive changes in the laptops ($M = 1.93$), when placed in the foreground of the photograph ($M = 1.07$), $F(1, 55) = 168.146$, $p < .01$. These findings demonstrate the importance of understanding the visual system, which can lead to

improved safety and security protocols, given that change blindness increases when motion is present (such as while driving; Wallis & Bulthoff, 2000).

108. Are Tattoos Lose-Lose? Perceptions of Women with Romantic Versus Memorial Tattoos
Sarah Chatfield, Kayla Bogs, Kyla Flynn, Kelsey Kurth, Psychology Department
Sponsor: Dr. Traci Giuliano

Women with tattoos have historically experienced more disapproval than have men (Hawkes, Senn, & Thorn, 2004), perhaps because women are under more scrutiny due to gender role constraints (Atkinson, 2002). The current study sought to understand perceptions of women with tattoos as a function of the significance and visibility of the tattoo design. As part of a 2 (Tattoo Visibility: Visible or Hidden) x 2 (Tattoo Significance: Romantic or Memorial) between-subjects design, 80 undergraduates (38 men, 42 women) read a brief scenario describing a target woman's tattoo, and then rated their perceptions of her likeability and power. A two-way between-subjects analysis of variance (ANOVA) was used to analyze perceptions of the target woman. For likeability, as predicted, participants rated women with memorial tattoos ($M = 38.4$) as more likeable than women with romantic tattoos ($M = 34.6$), $F(1, 75) = 10.89$, $p < .01$. Interestingly, for perceived power, women with hidden tattoos were perceived as more powerful if the tattoo was memorial ($M = 25.2$) than if it was romantic ($M = 22.9$), whereas women with visible tattoos were perceived as more powerful if the tattoo was romantic ($M = 23.2$) than if it was memorial ($M = 22.6$), $F(1, 75) = 4.86$, $p < .05$. These findings demonstrate unique tradeoffs between likeability and power due to female gender role confinement, which causes discriminatory behavior in customer service, social situations, and romantic relationships (Degelman & Price, 2002).

109. Shifting in the Saddle: The Effects of Equine-Assisted Therapy on Social and Behavioral Symptoms of Children with Disabilities
Kayla Bogs, Mayra Garcia, Kelsey Kurth, Psychology Department
Sponsor: Dr. Jacqueline Muir-Broaddus

Despite its growing popularity, there is almost no research on the effectiveness of equine-assisted therapy (EAT) for treating developmental disabilities such as Autism Spectrum Disorder (ASD). Hence, two longitudinal studies were conducted to assess changes in social and sensory functioning during a course of EAT at the Ride on Center for Kids (R.O.C.K). In the first study, 18 4-10 year old children with intellectual and developmental disabilities such as autism participated in weekly one-hour group sessions of EAT as part of their school day. Caregivers and teachers completed the Sensory Profile (SP) at the beginning and end of their 10-week session. In addition, a "control" questionnaire was completed either 10 weeks before EAT started or 10 weeks after EAT ended to compare changes during a period of EAT with changes occurring during an equivalent period of time without EAT. The second study was designed to replicate and extend Bass, Duchowny, and Llabre (2009). Six children and adolescents diagnosed with ASD participated in privately arranged weekly individual or group EAT sessions. Caregivers completed the SP and also the Social Responsiveness Scale (SRS) at the beginning and end of each of two 10-week sessions. Additionally, researchers conducted weekly observations of a subset of the children to document progress in social functioning, compliance, sensory seeking behaviors, and horsemanship. Data collection is being completed this week and statistical analysis will immediately follow. It is hypothesized that EAT will be associated with decreased symptoms and improved functioning in children and adolescents with developmental disabilities.

110. Adding and Subtracting Cultural Capital: First-Generation Students in a College Readiness Program
Mayra Garcia, Sociology and Anthropology Department
Sponsor: Dr. Sandi Nenga

Despite being the fastest growing ethnic group in the United States, Latina/os enroll in college and graduate at lower rates than Whites. First-generation Latina/o college students, in particular, may lack the cultural capital that would facilitate their educational success at elite liberal arts colleges. In summer 2010, one such college implemented a summer program that attempted to provide first-generation high school students (many of whom are Latina/o) with the knowledge, skills and personal connections that would facilitate their college application, attendance and graduation. Based on an ethnographic examination of this program, we found that several professors and staff unwittingly taught using examples which depended on cultural capital common to wealthy Northerners, reinforced the idea that the typical college student was white and from the upper-middle class, and highlighted how expensive it was to attend the college. However, college professors and staff also empowered the high school students by providing them with information about college admissions and financial aid, developed their oral presentation skills, and encouraged them to attend college.

111. Organic Reality
Rachel Gibson, Environmental Studies Program
Sponsor: Dr. Laura Hobgood-Oster

The term organic may bring to mind many different things to an individual. Even when applied to the food industry the meaning of the word is not always clear. In my research I look at which players in the industry actually determine the rules of organic production and labeling. Consumers are not always aware of what happens during food production, but assume certain things based on labeling. But why are certain consumers drawn to organic foods? Sometimes environmental ethics may be involved, or a belief of health benefits, for some purchasing organic foods, or it could be a way to keep up with the latest trends. The most important factor in purchasing patterns is inevitably availability. Selection of organic foods varies greatly from place to place and is often based on the demographics of the area. Even if organics are widely available, it does not mean that it is practical for everyone to choose them over conventional foods. Comparing organic selection in the two HEBs in Georgetown it is easy to see the difference between the two locations as well as differences among organic foods and the conventional variety. Clearly buying all organic all the time is not a viable option for many, but even the occasional organic purchaser is making a decision to support a more principled food system. There are definitely flaws in this alternative food option, but it is still a step closer to a sustainable agriculture future.

112. Food Insecurity in Georgetown, Texas and the Impact of the Georgetown Farmers' Market
Samantha Kessler, Environmental Studies Program
Sponsor: Dr. Laura Hobgood-Oster

The issue of food security involves complex relationships with social and environmental justice issues. For the purpose of this project I focus on the disparity of access to nutritious food between communities of differing socio-economic class. Food insecurity is perceived as an issue in developing countries, but is often overlooked in the United States. There are over 43,595,795 Americans living in food insecure households. This is a relevant issue at the local level as well, evidenced by the fact that in Williamson County there are 33,307 people living 125% under the federal poverty level. This is particularly significant since low-

income status is associated with lower intake of fruits and vegetables that protect against disease and various health problems. This project looks at current remedies to lack of access to healthful food through a focus on the Georgetown Farmers' Market. I will examine recent studies produced by entities such as FRAC and the USDA. In addition, conversations with farmers' market leaders, analysis of local news, and research into policy issues will provide necessary data. I suggest that one way to address food insecurity is through farmers' markets. Food voucher use at farmers' markets may have an impact on the effectiveness of WIC programs for example. Through understanding the current local issues, conclusions may be drawn about the feasibility of voucher use at the farmers' market. Furthermore, this research suggests ways in which the farmers' market might be able to or might fail to address this environmental justice issue.

113. Campus-Community Partnership: Can an Ecologically Sensitive Community be Designed Around the Historic Downtown Area of a Small Town?
 Samuel Marsh, Environmental Studies Program
 Sponsor: Dr. Laura Hobgood-Oster

Based on research of one small town, this project proposes that a community can be built around a historic downtown square that is both walkable and livable, modeled in many ways after the communities that originally occupied these spaces. Kaufman, outside of Dallas, is my hometown. It is a county seat with early twentieth century buildings set to accommodate a growing, largely self-sufficient community centered around the courthouse. This area currently has very few businesses and several empty buildings. This project examines how Kaufman changed over time from various perspectives as well as population's social needs. By working with local organizations to develop a plan that considers the environment, I hope to build a relationship between the campus and the community that combines both academic and non-academic perspectives. I will meet with local historians and downtown associations to assess hopes for the future of the downtown area. Then I will find ways these plans dovetail with environmental solutions that can improve the inhabitability of these areas. I hope that an ecologically sensitive community can be built outside of the urban setting that naturally encourages dense, compact living. By combining often forgotten methods with newer methods, these neighborhoods can provide a relatively affordable lifestyle, build a sense of community and also reduce long-term impact on the environment.

114. Barton Springs Stories
 Alexandra Zuzula, Environmental Studies Program
 Sponsor: Dr. Laura Hobgood-Oster

An environmental studies student with an interest in nature and science museum education, I am in the process of fabricating and co-curating a new exhibit at the Beverly Sheffield Education Center. The exhibit will focus on the history of Barton Springs and Zilker Park conveyed through photography called Barton Springs Stories. I have specifically focused on human interactions with the natural water source. Aside from research, I am in the process of helping select images for the exhibit, will help mount and frame them and create information plates. We will also be displaying artifacts from a dig done at Zilker Park a few years ago. Most of the research on the history of Barton Springs was done at the Austin History Center which has several newspaper pieces from the nineteenth and twentieth century, as well as all of the images used in the exhibit. The second part of my project will require looking at previous studies on museum education and learning and incorporating my own experiences fabricating and showing the exhibit. My hopes for the research and photography exhibit are that they help Austinites understand the importance of keeping Barton Springs a natural haven. Humans have been using the springs for a variety of reasons for thousands of years, and there is no reason that our increasingly industrialized

society should harm that. I want the photography exhibit to get an emotional reaction out of the viewers and instill a sense of pride in Barton Springs and Austin.

INDEX OF AUTHORS

- Adams, Hannah 34
 Alonzo, Jessica 49
 Alston, Ann 16
 Atkins, Benjamin 19
 Baik, Mi Hyang 22
 Bailey, Morgan 34, 39
 Bauman, Erik 41
 Benitez, Alejandra 30
 Benold, Abbey 23
 Bishop, Maggie 15, 26
 Bissing, Blake 15
 Blomquist, Brooke 48
 Bogs, Kayla 51
 Bracher, Benjamin 27
 Brown, Alex 21
 Brown, Inkah 9
 Burbey, Alex 49
 Campos, Celia 30
 Chacon, Kalyn 43
 Chatfield, Sarah 51
 Coley, Rachel 13
 Comerota, Michele 48
 Cooper, Shaun 24
 Cradit, Mason 30
 Crone, Kirby 35
 Daughtry, Matthew 10
 De Los Santos, Rebecca 35
 Deshaies, Molly 9
 Doenges, Amanda 20
 Eason, Courtney 44
 Eisenberg, Rebecca 1, 2, 49
 English, Addison 24
 Espinoza, Jessica 29
 Feiler, Ben 25
 Fenley, Anne 29
 Finn, Kelly 49
 Flatau, Matthew 22
 Flynn, Kyla 51
 Forsythe, Mallory 45
 Foster, Jenna 33
 Frausto-Martinez, Marisol 30
 Freeman, Rachel 23
 Frye, Donald 20
 Garcia, Mayra 51, 52
 Gibson, Rachel 52
 Glass, Lauren 18
 Grando, Alyssa 30
 Granger, Brady 18
 Hall, Alex 38
 Hardy, Will 30
 Harris, Christine 33
 Henderson, Stephanie 11
 Hernandez, Lauraly 32
 Holland, Cameron 19
 Holt, Kelly 37
 Hord, Tim 25
 Huskey, Charlotte 43
 James, Brendin 16
 Johnson, Sarah 50
 Jones, Leah 44
 Juarez, Juan 22
 Kamas, Matthew 21
 Keenan, Partick 45
 Kessler, Samantha 52
 Kirk, Jodi 40
 Klassen, Catherine 27
 Krusely, Kassie 46
 Kuiper, Derek 50
 Kurth, Kelsey 51
 Laurie, Mandi, 48
 Le, Tran 30
 Lester, Rebecca 24
 Lenderman, Kristi 30
 Leon, Fernando 37
 Lopez, Francisca 30
 Loukota, Audreay 30
 Lujan, Shelby 41
 Maduka, Nneka 13
 Marsh, Samuel 53
 Massey, Jessilyn 30
 McCulloch, Colin 50
 McEntire, Kira 13, 31
 Mead, Katherine 14
 Mingle, Morgan 10, 11
 Mitchell, Laura 38
 Morton, Hana 49
 Mossbarger, Jenna 26
 Murenzi, Jean-Pierre 47
 Neal, Andrea 14
 Newman, Thomas 47
 Niehus, Jena 9
 Nietfeld, Toni 21
 Niyomugaba, Yvette 47
 Olena, Audrey A. 31
 Ornelas, Abbie 38
 Petty, Heather 30
 Phillips-Perkoff, Natalie 29, 30
 Pierce, Nicholas 15
 Plantz, Allyson 12
 Plybon, Andrea 47
 Prater, John 46
 Pyle, Perri 26
 Rice, Megan 12
 Romer, Laura 10
 Romero, Fernando 50
 Rodriguez, Kelsey 41
 SayGan, Jasmine 32
 Scott, Lisa 42
 Scoville, Mary 35
 Sellers, Rachel 36
 Simon, Martha 49
 Smith, Allen 44
 Smith, Cody 14, 17
 Sreniawski, Eli 30
 Solis, Steven 30, 40
 Stanzer, Julia 42
 Strange, Julia 42
 Stumpf, Sean 17
 Sump, Kim 18
 Vadakekalam, Mary 48
 Tharps, Nekia 19
 Valadez, Travis 40
 Vasquez, Violetta 39
 Villarreal, Lizette 30
 Wakasugi, Diana 30
 Wall, Ashley 13
 Waller, Andrew 20, 27
 Watson, Sara 28
 Willems, Steffani 48
 Winsor, Catherin 28
 Wladyka, Matt 16
 Zuzula Alezandra 53

DISCIPLINE INDEX

American Studies Program, 14

Animal Behavior Program, 11, 38

Art and Art History Department, 32, 33

Biology Department, 12, 13, 31, 38, 39, 45

Chemistry and Biochemistry Department, 39

Classics Program, 20

Communications Department, 32

Economics and Business Department, 14,
15, 16, 17, 24, 26, 42

Education Department, 9, 10, 18, 19, 22, 41,
42

English Department, 13

Environmental Studies Program, 19, 43, 44,
52, 53

History Department, 20, 26, 27

International Studies Program, 18

Kappa Delta Chi, 30, 31

Kinesiology Department, 44, 45, 46

Math and Computer Science Department,
22, 41

Modern Languages and Literatures
Department (German), 17

Modern Languages and Literatures
Department (Spanish), 18

Music Department, 27, 28, 29, 30, 31, 47

Office of Diversity Education, 30

Philosophy Department, 19

Physics Department, 30, 31, 47

Political Science Department, 18, 22, 23, 24

Science Program, 47

Sociology and Anthropology Department,
20, 21, 37, 38, 52

Theater Department, 14, 28, 29

NOTES

2011 Student Works Symposium: From Every Voice

EVALUATION FORM

Indicate the category that most accurately reflects your status:

☐ Faculty ☐ Staff ☐ Student ☐ Community Resident ☐ Other _____

1. Overall, the Symposium offered a variety of research and creative works that you found interest in.

☐ Strongly Agree ☐ Agree ☐ Disagree ☐ Strongly Disagree

2. The poster sessions offered the variety and quality I look for in conference programs.

☐ Strongly Agree ☐ Agree ☐ Disagree ☐ Strongly Disagree

3. The oral sessions offered the variety and quality I look for in conference programs.

☐ Strongly Agree ☐ Agree ☐ Disagree ☐ Strongly Disagree

4. The information distributed prior to the Symposium was helpful in making plans to attend.

☐ Strongly Agree ☐ Agree ☐ Disagree ☐ Strongly Disagree

5. The facilities/meeting rooms effectively supported all sessions.

☐ Strongly Agree ☐ Agree ☐ Disagree ☐ Strongly Disagree

6. There was a good mix of presentations offerings at the Symposium.

☐ Strongly Agree ☐ Agree ☐ Disagree ☐ Strongly Disagree

8. The Symposium Web site contained useful information and was easy to use.

☐ Strongly Agree ☐ Agree ☐ Disagree ☐ Strongly Disagree

9. The food service was adequate and of appropriate quality for the Symposium.

☐ Strongly Agree ☐ Agree ☐ Disagree ☐ Strongly Disagree

10. Overall, I thought the Symposium was:

☐ Excellent ☐ Good ☐ Fair ☐ Poor

What did you like most of the Symposium?

What are your suggestions for improving the Symposium?

Please provide any additional comments.

Please return form to Christine Vasquez, Provost's Office

