

An abstract graphic consisting of flowing, overlapping bands of light blue and white, creating a sense of movement and depth. The bands curve and swirl across the page, with some areas appearing more saturated and others more translucent.

# **FROM EVERY VOICE**

**FINE ARTS HUMANITIES SOCIAL SCIENCES NATURAL SCIENCES**

**Eleventh Annual  
Southwestern University  
STUDENT WORKS SYMPOSIUM  
April 14, 2010**

**PROGRAM  
AND  
ABSTRACTS**

April 14, 2010

Members of the Southwestern and Georgetown Community,

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

In the past years, the Symposium has been a place where students may 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. The Student Works Symposium displays the students' skills in and out the classroom and encourages them to gain a greater understanding of the world.

This year, the symposium will showcase 99 presentations featuring the works of 116 students from 24 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 enhance the disciplines by providing a forum for scholarly interchange. We hope you find the symposium stimulating.

Sincerely,

Chrissy Vasquez  
Class of 2011  
Program Chair  
Student Works Symposium: From Every Voice

# **2010 STUDENT WORKS SYMPOSIUM: FROM EVERY VOICE**

Southwestern University  
Georgetown, Texas

## **Program Chair**

Chrissy Vasquez, Religion Major  
Class of 2011  
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

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

6:00 Introduction Remarks, Chrissy Vasquez, Program Chair  
Welcoming Remarks, Jake Schrum, President of Southwestern University

Refreshments served

6:00–7:00 Creative Works and Exhibitions in the Bishops Lounge

Poster Presentations in the Bishops Lounge

7:00–8:15 Continuation of Oral Presentations in the McCombs Ballrooms, Roy B. Shilling, Jr. Room, Margaret Shilling Room, and the Merzbach Room

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# PROGRAM AGENDA

## ORAL PRESENTATIONS

### Lynda McCombs Ballroom

- 5:00 1. How to Accurately Interpret a Peer's Social Class: Symbols of Class Status and Presentation of Self in College Students  
Alex Brown
- 5:15 2. Breaking the Cycle of Abuse: Why Advocates Work to End Domestic Violence and Sexual Assault  
Laura Burrow
- 5:30 3. Hot Spots for Swine Flu: Preparing for the New Influenza A(H1N1) Pandemic in London Schools  
Lauren Hamlett
- 5:45 4. Helping Them to Be Just Like Us: A Comparative Consideration of Charity-and Social-Justice Based Volunteer Organizations in Georgetown, Texas  
Carissa Nash

### Marsha Shields Ballroom

- 5:00 5. Labeling of Directed Graphs  
Sarah Stern
- 5:15 6. WELSH: Windows Easy Language Shell  
Lane S. Hill
- 5:30 7. Environmental Justice in Mexican Indigenous Communities  
Kimberly Griffin
- 5:45 8. Watterlogged: Maturity Mitigates Effects of Water Stress on Reproductive Efforts of an Invasive Freshwater Snail (*Pomacea insularum*)  
Matthew K. Trawick

### Connie McNab Ballroom

- 5:00 9. What Factors Play A Role in the Success of Social Revolutions  
John Appel
- 5:15 10. Constraints on the Political Leadership of Tony Blair  
Kyle D. Hermes
- 5:30 11. The (Non-) Politics of Disability  
Evan Schmitt
- 5:45 12. Supreme Court Leadership  
Lindsey Knapton

### Merzbach Room

- 5:00 13. The American Wilderness: Returning Home from Vietnam  
Allison Noblitt
- 5:15 14. The United States Military: Builders of Men  
Brian Shreckengast
- 5:30 15. POW! KLAABAAAM! \*SKREEECH\* The Voice of Comic Books in American War Literature  
Yandee Vazquez
- 5:45 16. Conditioned Anti-Predatory Behavior in Mulloway  
Morgan Mingle

### **Margaret Shilling Room**

- 5:00 17. Cross-Cultural Ethics Decision Making  
Kirsten Ralston
- 5:15 18. The FOX Nation: Antagonizing Conservative Discussion Online  
Alex Caple
- 5:30 19. Rhetorical Situation and Social Movements: A Case Study of NORML  
Cody Coughlin
- 5:45 20. Lesson Study Across Secondary Disciplines  
Ashley Barnard, Samantha Lingamfetter, Andrea Miller

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

- 5:00 21. Addressing Women, Ethnicity and Language through Education Policies: An International Comparative Analysis  
Charles B. Prince
- 5:15 22. Class, Clothing, and Consciousness  
Siobhan Cooke
- 5:30 23. Counter Lunch  
Joshua A. Hughes
- 5:45 24. Two-Year Population Survey of the Georgetown Salamander, *Eurycea Naufregia*, at Two Sites  
Alexis Ritzer

## **POSTER PRESENTATIONS**

### **Bishops Lounge**

- 6:00 Introductory remarks by Program Chair Chrissy Vasquez and welcoming remarks by President Jake Schrum

Refreshments Served

Poster Presentations

## **CREATIVE WORKS AND EXHIBITIONS**

### **Bishops Lounge**

- 6:00 52. Paint the Light: A Series of Multimedia Artworks  
Duncan Alexander
53. Insect Macrophotography: Portraiture as a Presence  
Carlos Barron
54. Wearable Waste  
Lindsey Knapton
55. Steel Pan Ensemble  
Thomas Newman, Briana Garcia, Josh Casiano

## ORAL PRESENTATIONS (cont')

### Lynda McCombs Ballroom

- 7:00 25. Regime Change and the End of the South African Apartheid System  
Robin Pulliam
- 7:15 26. The Recuperated Business Movement: An Exploration of the Possibilities Implicit in their Practice  
Diana Alejandra Parra
- 7:30 27. Measuring Gubernatorial Success: The Effects of Institution, Party, and Leadership Style in the Case of Rick Perry  
Staci Rives
- 7:45 28. Neither French nor African: The Crisis of Identity of Second Generation Immigrants in France  
Kathleen C. Shannon

### Marsha Shields Ballroom

- 7:00 29. Capital Matters: The Familial Effect on the College-Bound Student  
Callie Paige
- 7:15 30. Suspension of Disbelief: Baroque Fascination with the Fantastic and Fallacious  
Andrea Loer
- 7:30 31. Misogyny and Opera in Seventeenth Century Venetian Opera  
Stephanie Joy Stewart
- 7:45 32. Automated Microorganism Detector  
Pelham Keahey, Mason Cradit, Matthew Doris, Andrea Holland, Will Hardy, Steven Solis

### Connie McNab Ballroom

- 7:00 33. The Christian Environmental Ethic of Maroubra Junction Uniting Church: A Case Study  
Lorena Saenz
- 7:15 34. ANGELS in Macedonia: Recontextualizing Kushner for a Macedonian Audience  
Becca Plunkett, Kinsey Keck, Tyler King
- 7:30 35. The Exploration of Eshu the Trickster God in Theatrical Collaboration in Bulgaria  
Molly Rice, Kerstin Heitzke, Kinsey Keck, Hannah Rose
- 7:45 36. Argentina's Dirty War: A Look at the Nature of State Terrorism  
Luis "Fernie" Reyes

### Merzbach Room

- 7:00 37. The Social Context of Vocal Learning in a Captive Infant Bottlenose Dolphin (Tursiops Truncates)  
Morgan Mingle, Stephanie Henderson
- 7:15 38. What's in a Name?  
Julia Poritz, Mariah Arispe, Ashley Jackson, Amy Litzinger, Ruth Vasquez, Ali Zein-Eldin
- 7:30 39. Computers for Honduran Children  
Natalie Sanders, Kim Garcia
- 7:45 40. Piedras De Lumbre: From Haciendas to Ejidos to Emigrants  
Lorena Vega
- 8:00 41. LOL Mom and Dad, Who's Txting Now?: Remediating Middle-Aged Resistance to Text Messaging Through Advertising  
Lili McEntire

**Margaret Shilling Room**

- 7:00 42. The 'New Woman': Perceptions of Womanhood in New Delhi, India  
Hailey Easley
- 7:15 43. Crossing the Strait: An Investigation of Moroccan Immigration in Spain  
Julia Poplawsky
- 7:30 44. "Who's Your Daddy": Kin Recognition in Prepubescent and Adult Rats  
Jessica Bolton, Brittany Ford, Carissa Winland
- 7:45 45. Visual Perception of Cuttlefish on Moving Substrate  
Giulia Giuffre
- 8:00 46. Artificial Night Light and Nocturnal Anuran Calling Behavior in Northern Michigan  
Vernal Pools  
Alexander S. Hall

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

- 7:00 47. The Persistence of Pink: Perivitellin Fluid Fails to Protect Pomacea Insularum Eggs  
from Predation  
Olivia Stanzer
- 7:15 48. Ruhe und Ordnung: Race, Modernity, and Genocide in German South-West Africa  
Andrew Kirk
- 7:30 49. Trans-National Writing: Identity Formation in Migrationsliteratur  
Emily Gutzmer
- 7:45 50. Zhao Mengfu's Handscroll, *Autumn Colors*: Antiquity and Politics in Early Yuan  
Paintings  
Elise Huff
- 8:00 51. Shen Zhou's Lofty Mount Lu: Revitalizing Antiquity  
Derry Jameson



## ORAL PRESENTATIONS

1. How to Accurately Interpret a Peer's Social Class: Symbols of Class Status and Presentation of Self in College Students

Alex Brown, Sociology and Anthropology Department

Sponsor: Dr. Sandi Nenga

This study focuses on symbols of class status that are used in the presentation of self. In-depth interviews with college students suggested that students recognize various symbols of class in the presentations of their peers. Characteristics of symbols that represent a higher class status include extravagance, a large quantity of possessions, exclusivity, and ability to purchase new items. Characteristics of symbols representing a lower class status were frugality, function, wide availability, and inability to make frequent purchases. Students of all social classes used similar symbols to identify the class of their peers and to define their own social class status. This analysis provides information on different types of methods used for the presentation of class while also revealing the level of success that these methods have in influencing students' perceptions of their peers.

2. Breaking the Cycle of Abuse: Why Advocates Work to End Domestic Violence and Sexual Assault

Laura Burrow, Sociology and Anthropology Department

Sponsor: Dr. Maria Lowe

In the field of social movements, there is a dearth of sociological research on the reasons why people become involved as activists in the Anti-Domestic Violence Movement. Through a systematic analysis of data from four months of ethnographic research and six formal interviews with staff members and volunteers of a central Texas domestic crisis center, the current paper examines the reasons people become involved and maintain their participation in the social movement against domestic violence and sexual assault. The paper also explores the ways in which activists' personal experiences with domestic violence and sexual assault inform their own involvement in the movement. Findings suggest that in addition to social networks, staff members and volunteers choose to become involved in this movement for multiple reasons. Despite the emotional and physical costs of this work, staff and volunteers find positive incentives that motivate them continue to work towards breaking the cycle of abuse.

3. Hot Spots for Swine Flu: Preparing for the New Influenza A(H1N1) Pandemic in London Schools

Lauren Hamlett, Sociology and Anthropology Department

Sponsor: Dr. Edward Kain

On June 11, 2009, the World Health Organization announced that the spread of a strain of influenza A(H1N1), commonly known as swine flu, would be classified as a pandemic (WHO 2009a). From January through September 2009, the virus had already infected over 300,000 people worldwide and had caused over 4,000 deaths (WHO 2009b). In view of pandemic H1N1 2009 emerging as a growing health threat, especially in densely populated cities such as London, many aspects of the virus need to be closely studied in order to prevent its transmission. For this research, the impact of pandemic H1N1 2009 in London is examined by historical analysis to understand the epidemiology of H1N1. Since the virus disproportionately affects young people and transmission frequently occurs in schools, a content analysis of primary and tertiary educational institutions' websites was performed to

explore the impact of pandemic H1N1 2009 in London schools and to determine how the schools are reacting to the pandemic. This was supplemented by in-depth interviews conducted with head administrators at primary and tertiary institutions in London.

4. Helping Them to be Just Like Us: A Comparative Consideration of Charity- and Social-Justice-Based Volunteer Organizations in Georgetown, Texas  
Carissa Nash, Sociology and Anthropology Department  
Sponsor: Ms. Chauntelle Tibbals

One current trend in critical analyses of volunteerism centers on the pitfalls of charity-based structures' and popular ideologies' anachronistic perceptions of aid. Research has demonstrated that volunteerism functions well as an addition to government programs, but not as a solution to the larger structural issues influencing wider social problems (ie systemic poverty and social inequality). In an attempt to construct a more meaningful solution, many advocates seek to reframe the wider social structures responsible for shaping these charitable organizations by incorporating insights from social justice advocacy. This study will examine and compare the operationalization of these predominant organizational models (charity- and social justice-based volunteerism). In order to explore these models, I conducted participant observation research and collected empirical data in two Georgetown, TX area non-profits. The organizations have similar missions (proclaiming to aid school-age children in the community); however, one has proclaimed specific advocacy-based goals (maintaining the well-being of youth in the community through education and alliances with other organizations), while the other asserts broader goals (aiding children in general through fund-raising and donations). I conducted informal interviews and interacted with organization participants at all levels, from those providing services to those receiving them. I have found that both organizations, regardless of their stated missions, maintain members' class and race privilege, reproduce middle class values, and fail to challenge social structural inequalities.

5. Labeling of Directed Graphs  
Sarah Stern, Mathematics and Computer Science Department  
Sponsor: Dr. Alison Marr

Graph labeling has been widely researched over the last 50 years, and has applications in communication and social networking, circuit design, and database management. Recently graceful and magic labeling for directed graphs have been defined and studied. This talk will focus on some new labeling of directed graphs. All the mathematical background required to understand the concepts will be given.

6. WELSH: Windows Easy Language Shell  
Lane S. Hill, Mathematics and Computer Science Department  
Sponsor: Dr. Suzanne Buchele

A command-line shell is a computer program that allows a user to control their operating system using typed commands instead of a point-and-click interface. Most modern operating systems have both a graphical interface, as well as a limited command-line shell. For instance, Windows comes with cmd.exe, which is a DOS emulator. These command-line shells are often abstruse and can be confusing for new users, despite studies showing that command-line shells can allow users to finish tasks more quickly and allow the user to focus on their current task. The Windows Easy Language Shell, WELSH, is a command-line shell that is being developed as part of an Honors Study as an alternative to the command-line shell that comes with Windows. WELSH, which is intended for both beginning and advanced users, is designed to provide an easy but powerful command-line shell for users, to help bridge the gap between similar Linux and Windows shell commands as well as

provide access to easy but powerful tools. WELSH has the ability to create easy-to-remember aliases for files and programs, browser-like file navigation, network capabilities, the ability for easy translation from one language to another, easy and powerful process management, inline calculations, scripting capabilities, and the ability to use logical structures and looping structures. WELSH also has a built-in protection mechanism to protect files from accidental deletion and the capability to use color to discriminate different information. The result is an easy-to-use command-line shell that is full-featured and powerful. A presentation of this Honors project and a short demo of the software will be presented.

7. Environmental Justice in Mexican Indigenous Communities  
Kimberly Griffin, Environmental Studies Program  
Sponsor: Dr. Melissa Johnson

Environmental injustice can be described as any situation in which disadvantaged groups receive more environmental harms and enjoy fewer environmental benefits than privileged groups. Environmental injustice is extremely prevalent in indigenous Mexican communities, especially concerning land ownership and land stewardship practices. For the five hundred years since the arrival of the Europeans in current-day Mexico, the benefits of the land have gone to the landowners and government officials who got rich exploiting local resources at the expense of the original caretakers of the land. This paper explores the different ways in which the indigenous peoples of Mexico have been systematically oppressed, especially focusing on how these oppressive measures have reinforced each other in order to marginalize indigenous peoples from their traditional land and land practices. I began this research while I was studying in Cuernavaca, Mexico and continued working on it after I returned. I conducted this research by analyzing the land history of indigenous Mexicans through books and articles, primary documents, and local examples from my experiences in Mexico. My findings show that the changes in agriculture since the conquest have hurt the ability of indigenous peoples to practice traditional agriculture and have hurt the quality of the soil and water for everyone. However, the movement toward (or back to) non-industrial methods of agriculture is growing, as is the movement toward indigenous autonomy. In order to move toward true environmental justice, changes need to be made in power structures as well as in ecological practices.

8. Watterlogged: Maturity Mitigates Effects of Water Stress on Reproductive Efforts of an Invasive Freshwater Snail (*Pomacea insularum*)  
Matthew K. Trawick, Environmental Studies Program  
Sponsor: Dr. Romi Burks

Successful reproduction in new environments represents a critical determinant of an organism's invasive capability. Fecundity (mean annual offspring produced per female) best predicts invasiveness for mollusks. *Pomacea insularum*, a large freshwater gastropod native to South America, has successfully invaded several Texas waterways through multiple introductions. This aquatic snail oviposits egg clutches (often containing more than 2000 eggs) well above the waterline, where they fully dry before hatching. To expand our understanding of the effects of water exposure to clutch hatching efficiency, this study examined how water stress affected egg clutches of different ages. In a 2X2X3 nested design, we exposed clutches (N=8) to different durations (8 or 24 h.) and intensities (full submergence or float) of water stress at 3, 6, or 9 days after oviposition. To quantify quality of hatchlings, we placed 50 hatchling shells into a muffle furnace to measure mean inorganic mass shells. Hatching efficiency (HE = hatchlings/total eggs) significantly increased with clutch maturity and significantly decreased with increased duration and intensity. High intensity decreased HE for clutches stressed after 6 days, though high duration had a lesser effect on the same age group. High intensity/long duration water

exposure reduced HE compared to a control (i.e. not stressed) mean HE. Mature clutches remained the least susceptible to water stress of any duration/intensity. Clutch maturity, as well as stress duration and intensity significantly affected hatchling quality. Control efforts that could reduce the number of viable offspring produced annually could slow the progress of this destructive invader.

#### 9. What Factors Play A Role In The Success Of Social Revolutions

John Appel, Political Science Department

Sponsor: Dr. Alisa Gaunder

The study will be comprised of both primary and secondary sources and will cover the Cuban revolution, the Chinese cultural revolution, the Iranian revolution, the Russian/Bolshevik revolution and the French revolution. This paper asks what factors play into the success of a revolution. The hypothesis is that for a social revolution to be successful it is necessary for charismatic leadership and organizational leadership to be present. Charismatic leadership is key to successful revolutions because during a social revolution the goal is to change societal institutions which are firmly entrenched. Charismatic leadership based upon Max Weber's definition is able to get the followers to abandon their identity associated with the current system and adopt the new identity of the leader. This adoption of a new identity is what constitutes the success of a social revolution because when this new identity is adopted by society, it is not only the people who experience a change but the institutions as well. Charismatic leadership even though crucial, cannot by itself bring about a successful revolution. Oftentimes there must be another character of leadership, one that focuses on the concrete transformation of society or what Selbin calls organizational leadership. Even though the character of leadership differs on each scenario this study attempts to connect charismatic and organizational leadership with successful revolutions by looking at the Chinese and Iranian revolutions. Through this understanding of a crucial characteristic present in the leadership of successful revolutions maybe it will be easier to predict the outcomes of social revolutions in the future.

#### 10. Constraints on the Political Leadership of Tony Blair

Kyle D. Hermes, Political Science Department

Sponsor: Dr. Alisa Gaunder

Tony Blair's rise to power in British politics was exciting. His Third-Way of politics was something that was rhetorically powerful and aimed to bridge a gap between the ideological left and right. Moving away from Thatcherism in Britain, Blair wanted to move the country toward having a relationship between free-market capitalism and social democracy. Both Blair's rise to power and his actions once in power can better be understood by addressing and researching the issues of rhetoric, the constraints on leadership positions and opportunities given the scope of government, and the relationship between what is promised and what is actually possible. Looking at three different schools of thought involving political leadership, I ultimately work to show that there are domestic, institutional constraints on what the Prime Minister can do while in office that keep the leader from accomplishing their (often) promised ideological goals.

#### 11. The (Non-)Politics of Disability

Evan Schmitt, Political Science Department, Education Department

Sponsors: Dr. Alicia Moore, Dr. Shannon Mariotti

I will examine how and why people with disabilities are excluded from the realm of the Political. Specifically, I will look at disabilities through the lens of Liberalism to determine how the norms of Liberalism are not built for accommodating disabled subjects. Why is it difficult to incorporate people with disabilities in our Liberal society? Does this reveal a hole

in Liberalism -does it make Liberalism any less valid? I will end with whether or to what extent Liberalism can be reformed to accommodate people with disabilities. Or are Liberalism and the disabled diametrically opposed? I will define the 'Ideal Liberal Subject' using canonical Political Theorists' treatises on Education. These include John Locke, Immanuel Kant, Jean-Jacques Rousseau. I will then contrast/critique these classical views with contemporary political theorists including Barbara Arneil and others (yet to be identified).

## 12. Supreme Court Leadership

Lindsey Knapton, Political Science Department

Sponsor: Dr. Alisa Gaunder

The American government system is composed of three separate but equal branches, each serving their own purpose. Leadership studies focus primarily on the role of both the legislative and the executive branch, however the role of the judicial branch as leaders is often omitted one because they are not elected by the people and they are supposed to be insulated from the normal political pressures of election and partisan parties. However the court exemplifies a differing form of leadership that has transformed over the course of American History. This paper will analyze the role of the Supreme Court. It will begin by a thorough analysis of the role of the Supreme Court over its history up to the present, beginning with an investigation into the intentions as illustrated in the Federalist Papers, through modern interpretations of the role the court should play in government. The role of the court varies on whether the court is responding to the limitations defined by the period of its creation, the values and beliefs of the people on the bench, the Constitution and cases or the expectations of the behaviors for the justices. This paper will argue that it is in fact the institutions, the Constitution delineating the role of the court, decisions made by the court, and decisions made by other branches that have played an instrumental role in shaping the form of leadership that the Supreme Court as an institution possesses.

## 13. The American Wilderness: Returning Home from Vietnam

Allison Noblitt, English Department

Sponsor: Dr. Elisabeth Piedmont-Marton

Are we at war with nature? How does our relationship with the American wilderness affect the soldier's return from war abroad? Does our past with the wilderness help us to better convey war experiences through metaphor? My study examines the relationship between American war literature and our historical conceptions of nature and the American wilderness. In particular, this study focuses on the reintegration of Vietnam veterans into society. As my primary textual support, I examine Philip Caputo's *A Rumor of War* and Doug Peacock's *Grizzly Years: In Search of the American Wilderness* in the context of ideas put forth in the theoretical work of environmental historians Roderick Nash and William Cronon, clinical psychologist Jonathon Shay, and philosopher Leo Marx. As a result of this study, I found that ideas concerning the American wilderness affect the way Vietnam veterans express their war experiences as well as how they fit into American society upon their return. The veteran's restructuring of identity is largely influenced by traditional metaphors of the wilderness. This study was performed as a result of the English capstone *War in American Literature*.

14. The United States Military: Builders of Men  
Brian Shreckengast, English Department  
Sponsor: Dr. Elisabeth Piedmont-Martin

The uniformed man commands a place of special respect within American society. His camouflaged garb, erect posture, and close-cropped hair instantly distinguish him from civilians. These ostensible differences signify a true and inherent distance between the soldier and those citizens around him, a divide that is fundamental to society itself. For the soldier has been asked to do that which is the ultimate prohibition on the civilian population: to take another human being's life. But how do civilians, for whom this prohibition from birth has been ingrained into mind and body, make the transition from makers of the world to unmakers of it? It is by military training, a process that combines physicality and ideology in a way that first unmakes civilians and then makes soldiers or 'men' by deindividuating and generalizing identities so that these bodies become tools to kill and to expend. My Capstone project, a result of the English Department's American War Literature Seminar, delves into the ideology and structure of military training by examining the classic wartime memoirs of Tobias Wolff (*In Pharaoh's Army*), Phillip Caputo (*A Rumor of War*), and Anthony Swofford (*Jarhead*). As a critical lens I will implement a seminal work on the philosophy of war, Elaine Scarry's *The Body in Pain*, as well as recent works in war psychology by Jonathan Shay and Theodore Nadelson. My study examines the damaging pitfalls of military training while suggesting ways in which it can be made less traumatic.

15. POW! KLAABAAAM! \*SKREEECH\* The Voice of Comic Books in American War Literature  
Yandee Vazquez, English Department  
Sponsor: Dr. Elisabeth Piedmont-Marton

Narratives of violence and war in comic books are not difficult to find. Many dealt with a constant battle between good and evil, portraying greatly muscular, clever, and/or super-powered beings, mostly men, fighting to serve their country and its ideals. These images, however, are greatly removed from the life of the average soldier. They do not represent an accurate image of the kinds of wars real soldiers face because of their sheer fantasy. These idealized representations of war are common because it is what the common people want to see. They do not want to visualize the pain and suffering of men at war, but the hope that those men died valiantly. A somewhat accurate representation of war in comics is more difficult to find. Among the words and image of dapper valor and sanitized killing are comics like *Two-Fisted Tales* which, though sometimes more a tad fantastical, still present a work that subverts the supposedly masculine clear-cut heroic duty of dying in combat.

16. Conditioned Anti-Predatory Behavior in Mulloway  
Morgan Mingle, Psychology Department  
Sponsor: Dr. Jesse Purdy

In fish, Pavlovian conditioning has been shown to dictate defensive strategy and conditioned response (CR) serves to increase reproductive success. Mummichogs have been shown to respond to a stimulus predicting a predator attack in a manner that is predator specific, indicating that the unconditioned stimulus (US) determined the nature of the conditioned response (Purdy, McDonald, & Lee 2007; Shelton, et al, 2008). Though supportive, these studies left open the possibility that the life history of the animal may also influence the CR and strategy choice. To test this idea, we chose mulloway (*Arygrosomus japonicus*) a marine fish species that begins life in estuarine waters where they encounter aerial and marine predators. However, Mulloway gain size quickly and then move to deeper water where they are preyed upon rarely and only by marine predators. If life history plays a role in

determining defensive strategy, then mulloway should exhibit only one strategy, regardless of how many different predator types are conditioned. In four tanks, flashing lights predicted introduction of a predator, either the drop of a plywood pelican or a large rubber fish that could be moved side to side and up and down. Groups of five mulloway were randomly assigned to one of four conditions: 1) flashing lights predict a aerial predator; 2) flashing lights predict a marine predator, 3) unpaired presentation of light and aerial predator, and 4) unpaired presentation of light and marine predator. In response to a stimulus predicting either predator, mulloway, briefly startled, moved together more closely to each other, stayed on the bottom, and shook their bodies vigorously from side to side. Results are discussed in light of the hypothesis that the animal's life history of the animal may also influence conditioned responding and its choice of defensive strategy.

#### 17. Cross-Cultural Ethics Decision Making

Kirsten Ralston, Economics and Business Department

Sponsor: Dr. Andrew Ross

In light of the crisis of trust and recent ethical controversies in the business world, the study of cross-cultural ethics is pressing. Globalization and technological advancement have thrust corporations into conflicting ethical situations with no comprehensive framework to guide them. In my paper I examine two ethical decision making strategies: Laura Nash's "12 Questions" and Hamilton, Knouse, and Hill's "Heuristic Model for Resolving Cross-Cultural Ethical Conflicts". I integrate these models into an all-inclusive, practical framework to aid businesses in decision-making. I believe this model, which combines the internal focus of Nash's "12" with the external focus of the heuristic model, provides businesses the best guide. I apply this model to Google and their business venture in China. Google whose corporate motto is, "Don't be evil," has faced intense criticism from customers, civil rights groups, and media outlets because of their agreement to censor search results in China in an aim to stay competitive, gain market share, and provide information to Chinese citizens with a some-is-better-than-none attitude. I analyze Google's decision and extrapolate what I believe would be their answers to the questions of the integrated model to see how their decision would have differed had they possessed a comprehensive framework to guide their decision. Operating within cross-cultural ethics situations is essential to the future of commerce and is applicable to all businesses. Shareholders require businesses to act ethically and businesses must be equipped to do so. This integrated model allows corporations to do that.

#### 18. The FOX Nation: Antagonizing Conservative Discussion Online

Alex Caple, Communication Studies Department

Sponsor: Dr. Julia Johnson

On March 30<sup>th</sup> 2009, *FOX News* launched *The FOX Nation*, a news website dedicated towards rejecting "biased media" and accepting "fair play and free speech" as the foundation for "real news". Steeped in patriotic rhetoric, the website presents its ideals as those parallel to the founding documents of the United States, and invites its readership to participate in an online community where members share similar values. Focused on that participation, the site is primarily user driven, providing multiple forums for visitors to state their views and comment on the issues affecting national politics. However, in this presentation, I argue that *The FOX Nation's* opinionated headlines and article format antagonizes their readership into conservative communal action via their online discussion boards. To develop this argument, I utilize a close textual analysis of the site's 'hot topic' headlines and articles to pinpoint sites for comparison against the corresponding discussions that take place. Additionally, I address how the website's rhetorical adaptation of articles from *Fox News* ultimately cultivates unacknowledged misperceptions within the discussions taking place that reject other interpretations of the news. Finally, I suggest that *The FOX Nation* sets a potentially

dangerous precedent for online journalism and encourages political polarity between major online news websites.

19. Rhetorical Situation and Social Movements: A Case Study of NORML

Cody Coughlin, Communication Studies Department

Sponsor: Dr. Davi Thornton

This work seeks to examine the power of what Lloyd Bitzer calls the 'rhetorical situation', particularly the navigation of the rhetorical situation by a social movement organization. The National Organization for Reform of Marijuana Laws' (NORML) online news releases were the analyzed text for this study, and were used to examine how the rhetorical situation influences the rhetoric of an author. Ten articles were analyzed that span a time period from 1996 to 2009 in order to chart rhetorical shifts over a long period of successes and failures. Using a scale posited by Postmes and Brunsting, the rhetor's emphasis was critically analyzed and charted. The scale used is a grid with the x-axis ranging from persuasive rhetoric to confrontational rhetoric (i.e. lobbying to blockading) and a y-axis ranging from collectivistic action to individual action (i.e. demonstrating to civil disobedience). It was determined that as NORML's organizational goals became realized in mainstream society, a shift in rhetoric occurred with emphasis placed on collectivistic action and persuasive forms of argumentation. When goals were not realized, rhetoric shifted toward individual action and confrontational forms of argumentation. Ultimately, this case study shows that a social movement organization's rhetoric is impacted by the rhetorical situation, and rhetorical shifts occur correlatively according to that rhetorical situation.

20. Lesson Study Across Secondary Disciplines

Ashley Barnard, Samantha Lingamfelter, Andrea Miller, Education Department

Sponsor: Dr. Stephen Marble

This lesson was created in response to the process of Japanese lesson study. The goal was to incorporate technology into secondary classrooms in a way that would be applicable in all content areas. In the fall of 2009, three student teachers worked together to co-plan a lesson that would bring in guest speakers electronically. The basic structure of the lesson began with students creating questions for the guest speaker. The student teacher would then film the guest speaker answering the questions that the students had prepared to show in the next class meeting. This lesson was taught in a health classroom, a theatre classroom, and a math classroom. After each time the lesson was taught, the student teachers would sit down and discuss what worked in the lesson and what didn't, and then revise the lesson for the next time it would be taught. The theatre lesson was the most successful. This lesson created an opportunity for teachers across disciplines to incorporate technology into the classroom, helping students and teachers move forward with the ever evolving field of technology.

21. Addressing Women, Ethnicity and Language through Educational Policies: An International Comparative Analysis

Charles B. Prince, Education Department

Sponsor: Dr. Stephen Marble

Getting a better education has long been seen as the great social equalizer. Schools have long been seen as the vehicles to move social programs forward. As countries won their independence from colonial powers in the middle of the last century, educational policies were created that reflected the liberation rhetoric of equality and freedom promoted by newly emerging governments. But how has the rhetoric of liberation been translated into educational practice? One need look no further than *Brown v. Board of Education* in the United States for an example of how school practices (segregation) in fact worked directly

against the publicly proclaimed policy of universal access to quality education. I will compare educational policies and practices in four countries (the United States, South Africa, India, and Jamaica) that address three historically underserved populations (women, ethnic and language minorities) to determine how school practices have worked to hinder or promote the various national policies supporting liberation and equality.

## 22. Class, Clothing, and Consciousness

Siobhan Cooke, Sociology and Anthropology Department, Feminist Studies Program

Sponsor: Dr. Alison Kafer

This study looks closely at the impact of social class, particularly in the ways in which undergraduate students present themselves through clothing, and how it impacts their perceptions of other students. Goffman's theory of presentation of the self and dramaturgy will be used as a lens to view my data, which illustrates individuals' negotiation between front stages and back stages, and individuals' audience roles. My data will also be used to illustrate the impact of the unmarked norm of middle class on both middle class individuals and individuals outside of this 'norm.' My study found that the upper middle class tends to dress down their appearance to hide their social class status, but interestingly they notice their peers dressing up from their class status. The middle class tends to not hide their class by dressing up or down, which may be due to their position in the unmarked norm. The unmarked norm of the middle class is significant in analyzing class impact because, as one can see from the data presented, this subject position is extremely important in shaping one's perceptions. The middle class was split in their perceptions of others dressing up or down to hide their class status. I believe that the desire people have to achieve a neutral class status is a driving factor in the reactions my study found. This study has further explained the relationship between performance and audience roles in relation to social class, and lays a foundation for further exploration on these issues.

## 23. Counter Lunch

Joshua A. Hughes, American Studies Program

Sponsor: Dr. Bob Bednar

I intend to use my presentation to illustrate why there has been a resistance to the mainstream food production system. I intend to lay a foundation of the food system in America by giving a cursory overview of the mainstream food production. The themes that I will be focusing on most heavily are the industrialization, homogenization and centralization of the food production system. I plan to tell this story through the political, cultural and technological developments that spurred the change. I will start this overview in the late 19th-century, but will pay special focus to the 1960s and on. The second (but more important) point of my project will be to highlight the resistance to this industrialization, which started in its modern form during the counter-cultural movements of the 1960s. The structure of the presentation will be putting three things - modern mainstream American food production, the resistance to this mainstream nationwide and the local resistance - into the context of each other, and trying to discern the underlying causes for

## 24. Two-Year Population Survey of the Georgetown Salamander, *Eurycea Naufregia*, at Two Sites

Alexis Ritzer, Biology Department

Sponsor: Dr. Benjamin Pierce

The Georgetown salamander, *Eurycea naufregia*, is a paedomorphic spring- and cave-dwelling salamander known from only 14 sites in the San Gabriel River drainage of central Texas. Rapid urbanization places all known populations at risk, and poor understanding of their species ecology hinders conservation strategies planning. We conducted monthly,

minimally-invasive salamander surface counts at two spring sites over several years. At each site, both number of salamanders and percent cover objects occupied by salamanders varied monthly, with a general trend of higher abundance in spring and summer. Within the spring flow, salamander abundance decreased with distance from spring origin. The number of salamanders and water temperature deviated from the mean, showing significant positive correlation. Analysis of research literature suggests that salamander abundance will be negatively impacted by increasing urbanization, small substrate particles, and variation in water temperature; salamander abundance will be positively affected by increases in cover objects, factors that maintain substrate interstitial spaces, and by increasing aquatic invertebrates.

## 25. Regime Change and the End of the South African Apartheid System

Robin Pulliam, Political Science Department

Sponsor: Dr. Alisa Gaunder

The end of apartheid in South Africa marked a significant moment in the 20th century. The oppressive institutionalized system of segregation lasted for almost half a decade. There have been vast arrays of explanations given for why apartheid came to its eventual demise. Some argue that specific individuals, including Nelson Mandela and Desmond Tutu, were the dominating force that led to the end of apartheid. Others argue that, on a purely economic basis, apartheid as a political system was incompatible with capitalism. As a result of the incompatibility, apartheid could not continue to function alongside capitalism and so the oppressive system collapsed. However, both of these arguments do not fully explain the dismantling of the South African political system in the early nineties. By doing an in depth historical analysis of the events directly preceding the end of apartheid, I argue that globalization was the most significant factor leading to regime change in South Africa. International anti-apartheid movements, specifically in Britain and the United States, increased the attention that had been given to the situation. As a result, Western governments began to place a greater amount of pressure on the South African state. Along with these international movements, economic globalization also emerged to have a negative impact on South African economic stability. Rapidly increasing disinvestment occurred, as more and more money was being pulled out of South Africa by Western investors. The affects of globalization proved to be too much for the South African political system to withstand.

## 26. The Recuperated Business Movement: An Exploration of the Possibilities Implicit in Their Practice

Diana Alejandra Parra, Political Science Department

Sponsors: Dr. Eric Selbin, Dr. Shannon Mariotti, Dr. Michael Bray

Recuperated businesses around Argentina are engaging in innovating practices, both within and outside the walls of their work spaces. The movement is far from homogeneous, as the dynamics of each workplace are determined largely by the workers themselves. For this reason, the focus of this paper will not be on generalizing the experiences of thousands of Argentine workers, but rather, on exploring the potential implications of their innovation. I will begin by etching out the particularities of the Argentina Recuperated Business Movement that set it apart from similar worker-led enterprises: the specific historical context that gave renewed momentum to a practice rooted in syndicalist practices; the complicated relationship to both the state and unions that forged surprisingly autonomous work spaces; the development of the movement itself and how it expanded. After a description of the most innovating practices found within recuperated factories, I will analyze their implications through three theoretical lenses. I will explore how the workers of these recuperated businesses are combating alienation as Marx understood it through their implementation of

innovative mechanisms of production; their method of distributing earnings is one of the most salient examples. I will then explore their use of assemblies in the decision-making process, a decidedly directly democratic method of governance reminiscent of Rousseau. Finally, I will connect the relevance of these experiences to a greater societal context through the framework outlined by Oskar Negt and Alexander Kluge in their book *Public Sphere and Experience*: I will argue that these recuperated businesses are embryonic expressions of what Negt and Kluge call the 'Proletarian Public Sphere'.

27. Measuring Gubernatorial Success: The Effects of Institution, Party, and Leadership Style in the Case of Rick Perry  
Staci Rives, Political Science Department  
Sponsor: Dr. Alisa Gaunder

It is common in many states for institutional and partisan advantages to make or break the governor. However in Texas that is not the case. This paper will use the governorship of Rick Perry to examine the unique circumstances surrounding his unusual reign as governor of Texas. While some institutional powers have worked to his advantage, like his tenure and appointment powers, Perry can attribute the majority of his success to his individual leadership style. This paper will look at what that style entails by looking at his successful campaigning that has allowed him to remain favorable in the eyes of many Texans for so long. Perry has not been able to rely on traditional advantages, such as strong formal powers or party support, but instead has been able to make the best of his situation by capitalizing on his lengthy service as governor to position himself in the positive spotlight and remain in power. This case study goes against the typical explanations of gubernatorial success.

28. Neither French nor African: The Crisis of Identity of Second Generation Immigrants in France  
Kathleen C. Shannon, Modern Languages and Literatures Department (French)  
Sponsor: Dr. Francis Mathieu

Millions of French citizens of foreign origin are grappling with an internal conflict between their French national identity and the cultural identity inherited from their African background. These people were born and live in France, but do not consider themselves wholly French—their Francophone African heritage provides an alternate identity. I will investigate and explain the conflict between French and Francophone African identities, the problems deriving from this conflict, and how they cope with two identities that can sometimes be completely incompatible. I will discuss the history of French identity, including the current national debate on what it means to be French, which can be understood as a reaction against people's reluctance to assimilate and adopt French customs. I will also examine the generational conflict between first- and second-generation immigrants that makes it difficult for the latter to define their actual identity. I will finally explore the issue of identity from the point of view of women by considering their current role and freedom in French culture as opposed to the traditional role in North African culture that parents seek to perpetuate in France. A better understanding of this crisis of identity can allow for an insightful grasp on the fundamental underlying issues that France is currently struggling with: the alternative culture youths in working-class neighborhoods; their violence; the usage of slang; the disparity in unemployment between youths of African origin and youths of French descent; and a seeming lack of interest in education by students living in these neighborhoods.

29. Capital Matters: The Familial Effect on the College-Bound Student  
Callie Paige, Sociology and Anthropology Department  
Sponsor: Dr. Sandi Nenga

How exactly does the family influence one's decision on where to go to college? This paper uses twenty-eight in-depth interviews to explore how social and cultural capital contributes to the student's decision to attend Alden University, a private university located in Texas. The prominent role of social reproduction in the upper and upper middle classes, as well as the social and cultural capital that are available to these specific students, facilitated the application process in such a way that was not available to those of the lower social classes. Social mobility was more prominent in the application processes for students in the middle and working classes, suggesting that their particular cultural and social capital provided more indirect methods in the process of applying to Alden. Through the analysis of familial connections and other forms of capital that are mentioned in the interviews, this paper also identifies how the levels of social reproduction and social mobility may differ between social classes.

30. Suspension of Disbelief: Baroque Fascination with the Fantastic and Fallacious  
Andrea Loer, Music Department  
Sponsor: Dr. Michael Cooper

Composers of the Baroque era often used young boys, castrati, and women to portray male roles in opera. The once common technique of castrating men to preserve their pre-pubescent voices is horrifying to modern society. I set out to uncover the shift in societal values that correlated with this change in musical practice over time. I focused my study on Handel's opera *Alcina*. I studied the musical content of this opera and the singers for whom it was written. I researched musical and sexual practices of Baroque society, and found connections between the two. I found that Baroque people had a much different view of what is masculine and what is sexually attractive than people of today. The soft, more childish bodies and voices of castrati and young boys were the sexual ideal for the Baroque public, whereas modern people value a more muscular body and less sensitive air. The use of these pseudo-men and women in male roles also goes hand in hand with the Baroque obsession with suspension of disbelief. The change in musical practice from the Baroque era to the present is not only related to changing tastes in musical style or condemnation of the practice of castration. It also has much to do with the common view of what is sexually desirable to the people of the time. This manifests itself in the writing and casting of opera.

31. Misogyny and Opera in Seventeenth Century Venetian Opera  
Stephanie Joy Stewart, Music Department  
Sponsor: Dr. Michael Cooper

In the late sixteenth and early seventeenth centuries, an anti-feminist debate that had been simmering for decades was unleashed in Venice. Numerous writers took up their pens and joined the fray. One side defended the status quo, in which women were tucked away with little freedom. Their opponents included both men and women, and they argued for freedom from the oppression of a patriarchal society. In the operatic realm, the misogynist controversy is seen in plot content, female representations, and musical development. An example is the opera *La Calisto*. The libretto by Giovanni Faustini is a story of feminine desire and fulfillment. In it, Faustini weaves the current debate into a story taken from classical mythology. Francesco Cavalli reflects the seduction and transformation of women, and moralizing attitudes towards women in his musical setting. He created a sound world that depicted the stages of Callisto's transformation and entrance into a divine patriarchal

hierarchy. In *La Calisto*, Faustini and Cavalli produced something that synthesized the questions, debates, and hurdles facing the men and women of Baroque Venice.

32. Automated Microorganism Detector

Pelham Keahey, Mason Cradit, Matthew Dorris, Andrea Holland, Will Hardy, Steven Solis, Physics Department

Sponsor: Mr. Gerald Wade

The detection and identification of bacteria in blood samples is a 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.

33. The Christian Environmental Ethic of Maroubra Junction Uniting Church: A Case Study

Lorena Saenz, Religion and Philosophy Department

Sponsor: Dr. Elisabeth Piedmont-Marton

This project is a case study of the environmentally sustainable practices of Maroubra Junction Uniting Church located in Sydney, Australia. This includes an examination of sustainable features of the Church building through the discrete efforts of "Project Green Church" in addition to eight extensive interviews. The interviews explore their opinions of "Project Green Church" and how they view environmental sustainability through the lens of their Christian faith and further apply these beliefs and practices in their daily lives. I chose to conduct this study because I believe Christian churches should take more responsibility in the efforts of alleviating environmental degradation and the causes and effects of climate change. This project seeks to convey the potential that church communities have in organizing a community for social and environmental change. Results showed that initial motivations for environmentally sustainable practices were not due to their Christian faith, explicitly. Through processes of learning and activism, members of Maroubra Junction Uniting Church currently identify their environmentally sustainable motivations within the context and beliefs of their Christian faith. Furthermore, the results of "Project Green Church" were made possible through the efforts of the student age congregation who meet for Sunday evening services separate from the more elderly morning congregation members. Environmental activism must first be motivated through a respect for the intrinsic value of nature. With a closer examination of the Christian faith, this value can be found. Churches must develop Biblical discourse to provoke respect and care for all of the earth.

34. ANGELS in Macedonia: Recontextualizing Kushner for a Macedonian Audience

Becca Plunkett, Kinsey Keck, Tyler King, Theatre Department

Sponsor: Mr. Jared Stein

*Angels in America* is a play that is well known throughout the United States. It is a play that- to a large extent- recontextualizes American history. Tony Kushner has created a dramatic work that rewrites American history from 1981 to 1989, evoking and referencing historical figures that are known primarily- if not only- to an American audience. Is it possible to recontextualize this strictly American play in a way that makes it relevant to another

culture? Can this iconic American text be reshaped to create a compelling piece of theatre, a piece of theatre written for Americans but performed for a non-American audience? In December 2009 we were given the opportunity to work on Kushner's play in a different country with three professors from Southwestern University. We took part in a collaborative process that shaped and reshaped *Angels in America* for an audience in Skopje, Macedonia. Macedonia is a nation that is far more conservative than the United States. Homosexuality is not acknowledged publicly in Macedonia. In fact, it is virtually invisible. Thus a production of a play that centers around homosexual characters with AIDS was quite controversial for such a conservative country. A newspaper headline about the production read: "American Director Produces First Gay Play in Macedonia." It was imperative that we find a way to create a production to which our audience members could relate. Problems with textual translation, idiomatic expressions, and American cultural references arose constantly. However, through extensive collaboration between director, interns, dramaturge, designers, and actors, we were able to create a new dramaturgy, a dramaturgy that resulted in a piece of theatre that was both relevant and compelling to our Macedonian audience.

35. The Exploration of Eshu the Trickster God in Theatrical Collaboration in Bulgaria  
Molly Rice, Kerstin Heitzke, Kinsey Keck, Hannah Rose, Theatre Department  
Sponsor: Mr. Jared J. Stein

In preparation for the 2009 Rhodopi International Theatre Laboratory in Smolyan, Bulgaria, Southwestern students and professors received a Fleming Grant from the university in order to research the myth chosen for the laboratory of the Yoruba trickster God, Eshu. The research was compiled from a variety of books, journals, scholarly articles and videos depicting various African gods, including Eshu. Prior to the laboratory, the source materials were made available to all of the participants of RITL. The aim of this research was to provide at least a basic understanding of the myths of Eshu so that it could serve as a basis for the creation of theatrical works. During the laboratory, participants created several "found-space" pieces, an Argentinean style tango performance piece, and an adaptation of Aristophanes' "The Birds". The aim of the research and collaborative process was not merely to present these works during the laboratory, but to take pieces begun in the month-long process and further develop them. One such project begun by Southwestern students was developed into a piece called "The Fifth Sun" which was performed in October as part of the Sarofim School of Fine Art's fall theatrical season.

36. Argentina's Dirty War: A Look at the Nature of State Terrorism  
Luis "Fernie" Reyes, History Department  
Sponsor: Dr. Daniel Castro

For almost a year, I have been studying Argentina's Dirty War as part of my Honors Thesis for the History Department here at Southwestern University. The Dirty War (1976-1983) represents one of Latin America's most dramatic, and disturbing, examples of state terrorism. Hence, my presentation will focus primarily on the nature of state terrorism within the context of the Dirty War. Though this is only a segment of what my thesis addresses, I believe that it suffices to educate my peers on a subject that is often overlooked. Furthermore, in my presentation, I plan to present a definition of what state terrorism actually is and how it is applicable to the Dirty War in Argentina. I shall begin by recapping the most critical causes of the Dirty War, which primarily surround the ineptness of President Isabel Perón's regime (1974-1976). As for the state terrorism portion of my presentation, I shall cover influences, methodologies, and the populace's reactions to it. Finally, I shall conclude by discussing the immediate effects of the Dirty War on Argentina.

37. The Social Context of Vocal Learning in a Captive Infant Bottlenose Dolphin (*Tursiops Truncatus*)  
Morgan Mingle, Stephanie Henderson, Psychology Department  
Sponsor: Dr. Jesse Purdy

In dolphins, acoustic and tactile communication are vital between closely bonded individuals such as mothers and their calves in order to maintain contact, initiate reunions and transmit information regarding activity. During the first six months of age, the calf must learn how to effectively communicate. Very little is known about the acquisition and development of vocalizations and communicative signals of bottlenose dolphins. The goal of our project was to better understand the ontogeny of a vocal repertoire in a newborn captive bottlenose dolphin (*Tursiops truncatus*) over the first six months of life and determine the role of the calf's mother and non-mothering female dolphin (known as an auntie) in the newborn's early vocal development. Data was collected at a small marine mammal park in Coffs Harbour, NSW, Australia using 4 underwater cameras, 2 aerial cameras, and a hydrophone array. To date, we have established a comprehensive vocal repertoire and begun transcribing audio and video data for analysis. Given that acoustic communication is a vital component to the ecology of bottlenose dolphins, we expect the results of our research to advance the understanding of not only the acquisition of vocalizations of bottlenose dolphins, but also the function of vocal production.

38. What's in a Name?  
Julia Poritz, Mariah Arispe, Ashley Jackson, Amy Litzinger, Ruth Vasquez, Ali Zein-Eldin, Paideia Program  
Sponsor: Dr. Mary Grace Neville

Our Paideia Cohort has spent the past few months examining the issues and complexities surrounding the proposed name change for Southwestern University, as outlined in the Strategic Plan. Specifically, we have explored five themes: personality, connectedness, lineage, convenience, and growing into a name, all in relation to the proposed name change for Southwestern University. Within the theme of personality, we have considered the associations or connotations that a name has for ourselves and others. The theme of connectedness encompasses the concepts of identity, connection, history, tradition, and belonging. The theme of lineage also considers history in relation to the meaning of a name, and the logistics of a name. The theme of convenience simply examines the convenience of having a name over time, such as a woman's decision not to change her name after getting married. Finally, the theme of growing into a name explores the nature of embracing the individuality or uniqueness of a name over time. In conclusion, our Paideia Cohort hopes that our examination of the matters related to a potential name change will shed light on the issue at hand.

39. Computers for Honduran Children  
Natalie Sanders, Kim Garcia, Paideia Program  
Sponsor: Dr. Daniel Castro

Computers for Honduran Children began as an effort of Dr. Daniel Castro and ITS personnel six years ago to recycle old computers from the university and other sources with the ultimate goal of installing them in elementary schools in Honduras, in conjunction with Save the Children. Our Paideia cohort decided to continue the project as part of our civic engagement requirement in order to take a more active role in building community and reaching out to others. ITS collected a stockpile of computers over a three year period, finally totaling over one hundred monitors and hard drives. After completing a training session hosted by ITS, our cohort, ITS personnel and student workers spent the next two

months reimaging and checking computers to prepare them for shipment and installation. The computers were packed and shipped in April 2008. In early June, a group of ITS personnel, SU students, and two faculty members traveled to La Esperanza, Honduras to install one hundred and eight hard drives and monitors in eight different schools around the area. The project has continued and we have developed a strong community in our cohort, along with other cohorts interested in furthering the project after we graduate. Overall we would like to share the history and our impressions of this experience, as well as how it has affected our Paideia cohort as a whole.

40. Piedras De Lumbre: From Haciendas to Ejidos to Emigrants  
Lorena Vega, Paideia Program  
Sponsor: Dr. Carl Robertson

Piedras De Lumbre is a small town located in Jerecuaro, Guanajuato. With only about 1,000 residents and hundreds of emigrants, the history has been lost, left behind and buried within time. As an emigrant that left behind history, about twenty years ago, to create new history, I found that I needed to go back and learn what was left behind first, where history has happened but never been recorded. I spend a month in our little town up in the mountains, Piedras De Lumbre, interviewing elders, acquiring birth, death, baptism, and marriage certificates from the local municipal offices. My goal was to get information of at least four generations before me. The 1870's was as far back as I was able to find on record. Certificates were not commonly used and records were not kept in a central location. The great-grandmother of my paternal grandmother lived until about 1863. The in-detail stories, papers as proof, visits, and oral history that I collected took me back in history. I took note of the small town up in the mountains that nobody is aware of because is not part of a history book. I learned that there is history to be discovered, to be learned and to be shared even in the small places. It is history being lost within time, buried with deceased, and only kept alive up in the air.

41. LOL Mom and Dad, Who's Txting Now?: Remediating Middle-Aged Resistance to Text Messaging Through Advertising  
Lili McEntire, Communication Studies  
Sponsor: Dr. Davi Thornton

Middle-aged people have attitudinal barriers to the adoption of text messaging as an accepted form of communication that they will use. These attitudinal barriers fall into two major categories: first, attitudes related to the *social acceptance* of text messaging and second, attitudes related to *individual competency*. The "social acceptance barriers" include things like concerns over the etiquette of texting—appropriate places to text, appropriate context to text, and grammar. The other set of attitudinal barriers are "individual competency barriers," and these tend to stem from individuals' fear and anxiety over their own ability to successfully navigate the new technology. Because there is a promising market among the middle-aged demographic, this group is directly addressed within commercials by attempting to address both levels of barrier: social acceptance and individual competence. This rhetorical analysis of text messaging ads determines the persuasive strategies that are being used by advertisers to address both barriers.

42. The 'New Woman': Perceptions of Womanhood in New Delhi, India  
Hailey Easley, Sociology and Anthropology Department  
Sponsor: Dr. Melissa Johnson

Using open-ended interviews and participant observation, this study investigates the experience of being a middle class, educated, young woman in metropolitan India. The women I interviewed are between the ages of twenty and thirty and come from varied

educational and geographical and cultural backgrounds within India. For the women I spoke with, concepts of modernity, the socioeconomic affects of globalization, and nationalist ideology framed their reflections on their experiences. In this paper, I particularly focus on the following points of analysis: (1) how these women negotiate ideas of womanhood in their own identity and experiences, (2) what characteristics are associated with the 'ideal woman' in India, and (3) how concepts of modernity, globalization, and nationalism are reflected in their ideas about womanhood.

43. Crossing the Strait: An Investigation of Moroccan Immigration in Spain  
Julia Poplowsky, Sociology and Anthropology Department  
Sponsor: Dr. Melissa Johnson

This study examines the Moroccan experiences as immigrants in Spain, taking into particular consideration how their experiences are shaped by islamophobia and globalization in Europe more broadly. Until the late 1980s, more people were leaving Spain than coming in. Similar to Portugal and Ireland, Spain was a country of emigration. The tides changed and by 1990, Spain increasingly became a transit country for African migrants headed north and a receiving country for foreign laborers, primarily from Northern Africa and South America, as well as a place to retire for well-off Europeans. Today, Moroccans make up the largest population of immigrants in Spain, and unlike the experiences of North Africans in other countries in the Europe, Moroccan immigrants share a long history and culture with the Spanish. With data collected from interviews with Moroccans in Morocco, Moroccan immigrants in Spain and Spaniards, and participant observation in Moroccan immigrant neighborhoods in Granada, I explore how Moroccan experience in Spain has been shaped both by the islamophobia and anti-immigrant feeling throughout Europe, and by the historical relationship that ties Morocco and Spain together.

44. "Who's Your Daddy": Kin Recognition in Prepubescent and Adult Rats  
Jessica Bolton, Brittany Ford, Carissa Winland, Animal Behavior Program  
Sponsor: Dr. Fay Guarraci, Dr. Maha Zewail-Foote

Kin recognition can benefit a species as it provides a mechanism of inbreeding avoidance (Fletcher, 1987). For example, male mice prefer unrelated females to their mother or sisters (Hayashi and Kimura 1983). However, female mice show no preferences for related males (brothers, father). The present study investigated preferences of offspring for an unrelated conspecific over a closely related conspecific (i.e., father) in prepubescent (male and female) and adult (female) rats. Experiment 1 evaluated the preferences of sexually naïve, hormonally primed, adult female rats (38-41 days old) for an unrelated adult male or closely related male rat (i.e., father). Preference was determined by time spend near stimulus animals that were housed behind wire mesh. Similar to our previous studies of mate choice in rats (Lovell et al., 2007), sexually receptive female rats spent more time with one male over another. However, the preference was not related to kinship. Similar to female mice, female rats showed no clear preference for unrelated conspecifics. Specifically, 48 % of the adult offspring spent more time in the vicinity of an unrelated male whereas 52% of the adult offspring spent more time in the vicinity of a related male. Interestingly, of the fathers that were preferred by their daughters, 67% of them were also considered "attractive" by other unrelated females. Experiment 2 evaluated the preference of prepubescent male and female rats (24-25 days old) for an unrelated adult male or closely related adult male (i.e., father). Again, although offspring had strong preferences for one male over another, preferences were not related to kin relationships. Specifically 50 % of the female offspring spent more time in the vicinity of an unrelated male and 50% of the female offspring spent more time in the vicinity of a related male. However, 63 % of the male offspring spent more time in the vicinity of an unrelated male and 37% spent more time in the vicinity of a related male. The

results of these two experiments indicate that kin recognition in female rats has limited influence over mate choice.

45. Visual Perception of Cuttlefish on Moving Substrate

Giulia Giuffre, Animal Behavior Program

Sponsor: Dr. Jesse Purdy

Cuttlefish (*Sepia officinalis*), though colorblind, are well known for their ability to change their coloration pattern depending on the surrounding environment. Past research, for example, Chiao (2001; 2005; 2007) and Barbosa (2001; 2007), has focused on the cuttlefish' camouflaged response to natural and unnatural, specifically the standard checkerboard, substrates. Although these researchers have learned much about the cuttlefish' perception of size and color contrast of checkerboards, none have observed the cuttlefish in a moving substrate. In the current study, the standard checkerboard substrate with alternating color squares is used to determine the cuttlefish' flicker rate. The speed of the alternating color squares is increased until the cuttlefish can no longer distinguish that they are separate squares as determined by their change from disruptive to mottle camouflage before being decreased back to original speed. The average flicker rate of ten juvenile cuttlefish was determined. Additional moving substrates of optical illusions were used and the camouflaged response elicited by the cuttlefish was observed. An understanding of how cuttlefish perceive moving substrate contributes to the knowledge base of their unique visual perception ability.

46. Artificial Night Light and Nocturnal Anuran Calling Behavior in Northern Michigan Vernal Pools

Alexander S. Hall, Animal Behavior Program

Sponsor: Dr. Benjamin Pierce

Artificial lighting affects the physiology of nocturnal anurans; however, its effects on their behavior are still largely unknown. The goal of this study was to determine if artificial night lighting significantly affects male anuran calling behavior. Using the North American Amphibian Monitoring Program (NAAMP) protocol, seven vernal ponds in northern Wisconsin and Michigan were surveyed under a lit (800 lux) condition using a high intensity floodlight and an unlit condition (0.00001-0.1 lux). Overall, significantly fewer anurans called during lit than unlit surveys. Seven anuran species were detected during these surveys but only *Pseudacris c. crucifer* and *Hyla versicolor* were heard often enough for post hoc statistical testing. A non-significant trend revealed fewer *P. c. crucifer* called during lit surveys than unlit surveys. *H. versicolor* did not alter its calling behavior due to the lighting condition. Detected moonlight also accounted for some of the calling variance. Future conservation efforts directed towards anurans should address the potentially harmful effects of artificial night lighting on calling behavior.

47. The Persistence of Pink: Perivitellin Fluid Fails to Protect *Pomacea insularum* Eggs from Predation

Olivia Stanzer, Biology Department

Sponsor: Dr. Romi Burks

Exotic invasive species can be difficult to remove because they often disappear into the landscape. *Pomacea insularum*, a large but cryptically brown apple snail, recently established reproductive populations along the Gulf Coast. Adult snails remain aquatic except when female snails lay bright pink clutches on terrestrial vegetation above aquatic predators. In contrast to adults, these eggs stand out. However, eggs rarely show predator damage. Speculation exists that proteins, specifically ovorubin, in the "pink" of clutches makes eggs undesirable. No research exists that investigates how ovorubin and

accompanying proteins ecologically influence predation. We tested egg consumption by juvenile snails (mean operculum 32+/-3mm; mean weight 24+/-6g) as mediated by the presence of "pink" by using two reconstitution methods: a) using perivitellin fluid versus water; b) using egg and lettuce powder to create a gradient of potential deterrence. Our experimental results showed that no significant differences occurred in consumption of "pink" versus lettuce pellets, suggesting that "pink" did not deter predation by aquatic juvenile snails. Management efforts suggest submerging eggs to slow invasion, yet no one has considered implications of such a strategy. Although "pink" likely plays a specific functional role in terrestrial environments, we did not observe an obvious avoidance of eggs, suggesting that aquatic predators may consume clutches dropped in water. However, we need to build a better understanding of what ecological function "pink" plays in riparian-aquatic links and in hatching efficiency to assure that clutches inundated by management actions suffer predation and do not disperse.

48. Ruhe und Ordnung: Race, Modernity, and Genocide in German South-West Africa  
Andrew Kirk, Modern Languages and Literatures Department (German)  
Sponsor: Dr. Erika Berroth

This paper, completed for a senior honors project, focuses on the extent to which the Herero and Nama Genocide represented an 'interface' between the relatively disorganized violence of frontier societies and the 'modern', bureaucratized genocide represented by the Holocaust. While concentration camps housing 'combatant' civilians are widely considered to have first been featured in the South African War, the Namibian Genocides were historically unique in their joining of labor and incarceration, and foreshadowed the development of modern, bureaucratically managed concentration camps. Specifically, I sought to focus on the extent to which the colonial discourse on race and race-thinking (in addition to, and aided by, the bureaucratic social engineering colonial rule necessarily presupposed) served as a 'laboratory' for the emergence of totalitarian societies in the later 20<sup>th</sup> century. In completing this project, I drew from a wealth of primary and secondary source material, including the 1918 'Blue Book' documenting Namibia under German colonial rule, as well as the scholarship of East and West German historians, the Dar es Salaam school, postcolonial studies, and comparative genocide studies. In working on this project, I sought to construct a broadly interdisciplinary narrative of the genocide and its later politicization.

49. Trans-National Writing: Identity Formation in Migrationsliteratur  
Emily Gutzmer, Political Science Department, Modern Languages and Literature  
Department (German)  
Sponsor: Dr. Erika Berroth

The increasingly prominent position and critical attention to the literature of migration within the German literary scene is helping to establish a venue for the expression of new identities. In an increasingly globalized world, movement and migration challenge traditionally constructed national identity, forcing those who do migrate to face complex issues of assimilation and/or discrimination within an adopted homeland. Literature enables the authors to work through these questions and experiences, granting voice to the people and issues not often heard. By writing in the adopted language of German, but allowing traces of a home culture or language to emerge, authors manage to create within the adopted culture both a poetic and a theoretical "space" in which they can create a new, trans-national (no longer just multinational) identity. In this work I examine the theoretical frameworks of identity, memory, and trans-national (not multinational) literature as well as specifically examining German literature of migration in order to ultimately argue that this body of literature can and does serve as a venue for new foundations of identity based on movement, transition, and difference.

50. Zhao Mengfu's Handscroll, *Autumn Colors: Antiquity and Politics in Early Yuan Painting*  
Elise Huff, Art and Art History Department  
Sponsor: Dr. Diana Tenckhoff

This presentation focuses on the Yuan Dynasty (1279-1368) poet, scholar, collector, connoisseur, court official, and painter Zhao Mengfu (1254-1322). The Yuan Dynasty, a dynasty under Mongol domination, was a challenging period in Chinese history for scholars like Zhao who struggled to maintain Confucian principles of government service during foreign control. Zhao chose to serve the Mongol court, and his handscroll *Autumn Colors on the Qiao and Hua Mountains* (1295) was painted after his return to Wuxing from his service at court. To understand this scroll, it is important to examine how Zhao's court service played a role in his collecting, connoisseurship and study of antiquity. *Autumn Colors* is one of the most important early Yuan Dynasty paintings because it best represents Zhao's new approach to the past as a source of artistic inspiration. Documentary evidence supports Zhao's interest in antiquity. First, a record of a conversation between Zhao and his teacher Qian Xuan notes his interest in and admiration of the court official, poet, and painter Wang Wei of the Tang Dynasty (618-907). Second, Zhao's private collection included at least one Wang Wei landscape. This presentation concentrates on Zhao's transformation of antiquity, particularly Wang Wei. Zhao's emphasis on Wang Wei is important because it resulted in a revival of the Tang master during the early Yuan dynasty, a revival that continued to impact the Ming (1368-1644) and Qing (1644-1911) dynasties. Zhao's rejuvenation of antiquity set a new standard of studying the past in the early Yuan and revived Wang Wei.

51. Shen Zhou's Lofty Mount Lu: Revitalizing Antiquity  
Derry Jameson, Art and Art History Department  
Sponsor: Dr. Diana Tenckhoff

The focus of this paper is the hanging scroll, *Lofty Mount Lu*, 1476, now in the National Palace Museum, Taipei, by one of the most prominent Ming dynasty (1368-1644) painters, calligraphers, poets, collectors, connoisseurs, Shen Zhou (1427-1509), famous as the founder of the Wu School. Not only is Shen Zhou crucial to our understanding of Ming dynasty literati painting, his scroll, *Lofty Mount Lu* epitomizes the essential qualities of Shen's art. The scroll illustrates the famous Mount Lu, located near Lake Po-yang in Kiangsi province. Shen depicts a mountain known for its height and majesty and he focused on this important peak because it was the ancestral home of his revered teacher. *Lofty Mount Lu* illustrates Shen's ability to transform the past, particularly the Yuan (1279-1368) and Song (960-1127) dynasty literati traditions, but one of Shen's most important contributions was his incorporation of the early Ming literati approach into his painting theory along with Song and Yuan. This study examines how Shen Zhou transformed ancient traditions. My analysis of this painting revolves around an as of yet unexplored aspect in the study of Shen Zhou's painting, *Lofty Mount Lu*. The main point in this presentation is to consider how Wang Meng's hanging scroll, *Forest Grotto*, also in the National Palace Museum impacted Shen's illustration of *Lofty Mt. Lu*. Concentrating especially on the style of the Yuan dynasty master Wang Meng (1308-1385) and the painting theory of Shen's teacher Du Qiong (1396-1474) helps to explain this point. *Lofty Mount Lu*, is a complex painting representative of the middle of his career. It best expresses the pinnacle of Shen's revitalization of antiquity. This painting is important because it combines a multitude of pre-Ming artistic styles into a monumental mountain landscape. Prior to the Ming, most art historical lineages emphasized the Song style of paintings, however, by including Yuan and early Ming artists in his artistic lineage, Du Qiong provides Shen Zhou with a historical basis on which to begin his artistic synthesis of ancient and contemporary Ming styles. One of the challenges in undertaking this study was to determine the sources of Shen Zhou's painting. The question of how Shen gained access to Wang Meng's art is one of the concerns of this study. Shen

Zhou's knowledge of the early Ming painter Wang Fu (1362-1416), as well as his teacher Du Qiong is also integral to understanding this scroll and will be addressed. In conclusion, it may be noted that Shen Zhou adapted Wang Meng's style, clearly evident in the composition and brushwork. My argument stresses the fact that the essential spirit of *Lofty Mount Lu* is the same spirit as that found in Wang Meng's *Forest Grotto*.



## Creative Works and Exhibitions

### 52. Paint The Light: A Series of Multimedia Artworks

Duncan Alexander, Studio Art

Sponsor: Ms. Victoria Star Varner

"Paint the Light" is a series of four multimedia artworks composed of acrylic paintings on canvas or panel with digital images projected on their surfaces. The intent of the project was to explore the interactions between the two media, breaking new ground in the field of multimedia art. The irreproducible physical object, in this case a painting, is combined with an infinitely reproducible digital file displayed by a projector. This calls into question the idea of the original art object, and makes reference to the ubiquity of digital media in culture. In the production and display of the works, several unanticipated qualities of digital media revealed themselves. These included a tendency towards interactivity in the work, the power of such images to draw viewers' focus, and a curious relation to the distinction of self on- or offline.

### 53. Insect Macrophotography: Portraiture as a Presence

Carlos Barron, Studio Art

Sponsor: Ms. Mary Visser

Taking a portrait of a person can be a difficult task but taking a photograph of an insect is more technically challenging. What I want to achieve with many of these photographs is to capture the presence of these insects by presenting them at a human scale. I think that part of the reason we don't give much importance to their presence is that they are too small or too fast for us to see. I have to develop patience and respect when I enter their territories. I don't want to collect insects and disturb their microcosmos. Instead, macrophotography allows me to capture these experiences and to reveal the worlds that operate alongside our human community. I don't have to travel to exotic environments to find alien-like creatures. I have already found them in our university campus and in many of our familiar places.

### 54. Wearable Waste

Lindsey Knapton, Theatre Department

Sponsor: Ms. Kerry Bechtel

The goal of this project will be to use alternative, recycled materials (i.e. Cereal boxes, bike tires, soda tabs, chip bags, candy wrappers, plastic bags, etc), normally considered to be waste, to design and build two complete outfits. The project will include my initial research in both images and patterns from nature and construction techniques. From these images I will create two renderings for the garments that I will be building. The bulk of my time will be spent experimenting and creating garments using these alternative materials, though at the end I will have constructed wearable clothing from waste.

### 55. Steel Pan Ensemble

Thomas Newman, Briana Garcia, Josh Casiano, Physics Department

Sponsor: Dr. Steve Martin

The Southwestern Steel Pan Ensemble seeks to further enrich our campus and community by introducing a style of music currently unavailable in Georgetown. Our purpose is not only to expand the musical genres, but also to facilitate an introduction to the culture from which steel pan music originates. This approach aims to explore steel pan compositions and

situate the ensemble in a tradition of harmonic communication vital to this type of percussion. Through producing a unique sound found only in this type of instrument we hope to arouse an awareness of musical styles uncommon to our region. The Southwestern Steel Pan Ensemble moves to genuinely connect the heart of Central Texas with a musical culture it is presently unacquainted with, thus further enriching the diversity of the arts.

## Poster Presentations

### 56. Characteristics of Patients Using Extreme Opioid Dosages in the Treatment of Chronic Low Back Pain

Shannon Essler, Chemistry and Biochemistry Department  
Sponsor: Dr. Kerry Bruns

Physicians frequently treat chronic low back pain (CLBP) with opioid prescriptions; however, research indicates that the repercussions of chronic opioid treatment may undercut the efficacy of their use. In this study, we investigate the appropriateness of extreme, high-dose opioid therapy by differentiating characteristics of CLBP patients who take > 115 mg/day in morphine equivalence, from those taking lower doses and those taking none at all.

Methods: 213 outpatients with CLBP were enrolled from six Family Medicine residency programs. One year follow-up data was collected from 204 medical records (96% follow-up) and from 137 patient surveys (64% follow-up). Results: 79% of opioid-users took  $\leq$  50mg/day in morphine equivalence. The very high dose users of opioid medication were most likely to have a diagnosis of depression, anxiety or Hepatitis C. These patients were also most likely to take benzodiazepines, most likely to be enrolled at a specialized Pain Clinic and most likely to report the poorest physical and role functioning. Conclusions: The characteristics of patients taking extreme doses of opioids are congruent with those patient characteristics known by current, published guidelines to be risk factors for opioid abuse and diversion. As a result, we recommend clinicians should reconsider the appropriateness of any opioid prescribing above 115 mg/day in morphine equivalence and recognize that dosages  $\leq$  50 mg/day represent a community standard for the treatment of chronic non-cancer pain.

### 57. 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 salt. These selenonium salts may be purified by recrystallization. Pyrolysis of these salts affords the corresponding diaryl selenides, which can be oxidized to the selenoxides and selenones.

### 58. Students Enthusiasm Improved by Outdoor Curriculum

Karalyn Jones, Education Department  
Sponsor: Dr. Micheal Kamen

When working with students in a classroom a new teacher often wonders why many of her students do not seem to be grasping the science TEKS. This tends to drive the teacher to find fun and interesting ways for students to learn more about science. Finding articles about different Outdoor Curriculum, looking at some Curriculum, and talking with a few teachers who use Outdoor Curriculum gives many insights about how a new teacher could bring that type of Science Curriculum in to her own classroom with ease. Outdoor Curriculum is extremely beneficial to students not just for science but for other areas of study as well. It gives students a chance to enjoy learning again. Outdoor Curriculum as well as the other

subjects can change the way students view learning as something to enjoy, rather than something they just have to get through.

59. How to Sell a Cupcake

Sarah Gould, Economics and Business Department

Sponsor: Dr. Andy Ross

While the cupcake is not new to the dessert scene, its recent hype in American popular culture has resulted in a boom in the cupcake bakery industry. Cupcake bakeries are cropping up all over the country, with some even becoming national chains. With such a rapid increase in popularity and success, it is necessary to explore the cupcake culture further. How do bakeries manage to sell cupcakes? Why are they in such great demand? What is so special about a tiny little cake topped with a disproportional amount of icing and why does it go for a premium in cupcake shops across the country, when it can be baked in anyone's home kitchen? My experiences at Galaxy Cupcakes as the Business Development Intern explore these issues through a business lens. I developed the business and marketing plans, I worked on their advertising strategy, and I learned the ins and outs of running a small business. Through my internship experience, I developed a smart approach for small business marketing and applied the concepts I learned in my business classes to better develop Galaxy Cupcakes business. My poster presentation will include my business plan, marketing plan, strategic plan, and my small business marketing approach. I will also provide research into the cupcake craze and why this small business idea is taking America by storm.

60. Cathepsin L Overexpression in Kirsten Sarcoma Virus-Transformed Fibroblasts May Be Epigenetically Controlled by Histone H3 Acetylation

Elizabeth Ferrick, Chemistry and Biochemistry Department

Sponsor: Dr. Kerry Bruns

Cathepsin L, a lysosomal cysteine protease, is over expressed in Kirsten sarcoma virus-transformed murine fibroblasts (KBalb). Western blot analysis shows that histone H3 is hyperacetylated in these cells relative to controls (Balb-3T3). We investigated the possibility that cathepsin L over expression resulted from epigenetic changes in the transformed cells. Nuclear extracts from cells grown in culture were prepared for analysis by Chromatin Immunoprecipitation (ChIP) using an antibody to acetyl-histone H3. The ChIP-selected DNA was used for subsequent PCR analysis, with primers targeting the promoter and first exon regions of the cathepsin L gene. We observed PCR products from both cell lines for both primer sets, but greater amplification was associated with the 3T3 cell line. This unexpected result could be due to errors in experiment design, such as primer placement, or could implicate the necessity to characterize combinations of epigenetic patterns. Finally, the over expression of cathepsin L could be causing the cleavage of part of the acetylated tail, as is seen in mouse embryonic stem cell development. Further experiments are needed to pursue these possible explanations.

61. On the Convergence of Infinite Series and Products

Sean Watson, Mathematics and Computer Science Department

Sponsor: Dr. Fumiko Futamura

Infinite series of real numbers can be classified as one of three types: absolutely convergent, conditionally convergent, or divergent. Riemann showed that any conditionally convergent series can be rearranged to converge to any other real number. This idea can be generalized to higher dimensions, which I will cover briefly. Divergent real series also have an interesting property: as long as the terms of the series converge toward zero, then by alternating the signs of the series such that every other term is subtracted, you will obtain

a convergent series: the alternating series test. This result has known generalizations for higher dimensional spaces ( $R^2$  for example). Dr. Futamura and I have shown a similar result for Lie Groups, such as the infinite product of invertible matrices.

62. The Fiscal Impact of Water Issues on the Western States

Sarah Woolley, Political Science Department

Sponsor: Dr. Gilbert St. Clair

This is a comparative paper addressing how select water issues will affect the states of Arizona, California, Colorado, Nevada, New Mexico, and Texas. The traditional western water laws are not consistent with the actual hydrology of the land. Due to droughts, the affects of urbanization and climate change, the West is forced to manage and distribute the existing water in the most efficient way. Here I will analyze each state's current water supply and their projected average rate of consumption in each sector (i.e. Municipal, Industrial, Agricultural). From that the budget constraints that will be placed on each state will differ drastically. By analyzing each state's efforts in conservation, the availability of groundwater and surface water, and the necessity of water transfers, I will predict the fiscal impacts of these issues on the states. This will lead me to determine which states are the most prepared for future growth and needs.

63. Synthesis of Seleno-Dapsone

Natalie Sanders, Chemistry and Biochemistry Department

Sponsor: Dr. Lynn Guziec

Dapsone, 4,4'-diaminodiphenylsulfone, is a sulfonamide-like antibacterial agent primarily prescribed for Hansen's disease (leprosy), but has also proven effective against other bacterial infections including staph, strep, and tuberculosis. Unfortunately administration of Dapsone in high doses often results in serious side effects such as anemia, hemolysis, and in serious cases, Dapsone hypersensitivity syndrome. Selenium analogues of other sulfonamide and sulfone drugs have proven to be more effective and less toxic than their sulfur counterparts. The research objective was to replace the central sulfur atom in Dapsone with selenium, creating Seleno-Dapsone. The synthetic approach to 4,4'-diaminodiphenylselenone from 4,4'-dinitrodiphenylselenide, involved selectively reducing the nitro groups to amines, which were then protected. The selenium atom was oxidized and the resulting molecule was deprotected, affording the Seleno-Dapsone derivative.

64. Why do Low Brass Students Drop Out of Band?

Ann Alston, Music Department

Sponsor: Dr. Eileen Meyer Russell

This study was designed to discover why low brass students have a low retention rate in band and how this can be improved. There is a shortage of low brass players in general, and there is also a significant gender stigma attached to the instrument. With assistance from the International Tuba Euphonium Association (ITEA), surveys were sent to members of the association who identify themselves as professionals or students. In all, 622 students and 514 professionals were contacted via e-mail. Our survey questions requested that only college professors who teach low brass instruments (trombone, euphonium, and tuba), and students over 18 years of age answer the survey. We received 73 responses from college professors who teach low brass instruments and 107 students over the age of 18 who play low brass instruments. According to the respondents, some possible solutions to improving low brass retention include more exposure to professional musicians and changing the negative stereotypes of low brass. By providing good role models and getting brass players more involved, retention can be improved, and more people will be able to enjoy low brass music.

65. Introverted or Shy: A New Perspective on the Measurement of Introversion  
Lauren Margulieux, Psychology Department  
Sponsor: Dr. Traci Giuliano

Most introversion scales measure both introversion social anxiety by including questions about sociability, or how social a person is. However, a low score for sociability can be explained by either introversion or social anxiety. Given that introversion is the lack of desire for social situations (Francis, Craig, & Robbins, 2007), whereas social anxiety is the avoidance of social situations independent of desire (Leary, 1983), the present scale sought to measure introversion based only on preference for social interaction. In our study 83 undergraduates rated their agreement with the eight introversion items on 5-point Likert scales. Participants also completed an extraversion scale (John & Srivastava, 1999), the Cheek and Buss (1981) Shyness Scale, and an item assessing their satisfaction with their level of shyness. Our introversion measure had internal consistency ( $\alpha = .82$ ), and a factor analysis revealed a single component. Although extraversion positively correlated with satisfaction with level of shyness,  $r(81) = .43, p < .001$ , and shyness negatively correlated with satisfaction,  $r(81) = -.36, p < .001$ , our introversion scale did not significantly correlate with satisfaction with level of shyness,  $r(81) = -.20, p = .07$ . Thus, preliminary analysis suggests that our introversion scale measures preference for social interaction. Further research is needed to confirm the factor structure of the scale and to establish convergent and divergent validity with other similar scales. The present scale can provide a more precise measure of introversion, which is one of the most common factors of personality studied in current literature.

66. Feel Free to Hit the Snooze Button: Time of Day Does Not Influence Surface Counts of the Georgetown Salamander (*Eurycea Naufregia*)  
Tiffany Biagas, Alexander S. Hall, Alexis Ritzer, Biology Department  
Sponsor: Dr. Benjamin Pierce

Determining population size and density plays an important role in developing management strategies for species of conservation concern. Surface counts are commonly used for assessing population density of aquatic salamanders and may be influenced by environmental factors such as temperature, oxygen levels, stream flow, and time of day. We examined the influence of sampling time and other environmental variables on the number of salamanders observed during surface counts of one population of the Georgetown salamander (*Eurycea naufragia*), an aquatic species endemic to the San Gabriel River drainage of central Texas. Surface counts were conducted at one spring pool over a ten-week period in the fall of 2009. One morning and one afternoon survey, separated by approximately 48 hours, were conducted weekly and which survey came first (morning vs. afternoon) was randomized. Water temperature, oxygen concentration, specific conductivity, water depth, and percent cloud cover were recorded during each survey. No significant differences were found in number of salamanders observed between morning and afternoon surface counts. Additionally, the number of salamanders was not correlated with any of the environmental variables measured. These results suggest that sampling at different times during daylight hours will not bias the results of surface counts.

67. Attempted Synthesis of Novel Bis-Anthrapyrazoles  
Jennifer Pitzen, Chemistry and Biochemistry Department  
Sponsor: Dr. Frank Guziec

Anthrapyrazoles (APs) are planar heterocyclic molecules that have been investigated as potential antitumor drugs. Anthrapyrazoles are believed to interact with DNA by intercalation. We are investigating the possibility that the biological activity of simple

anthrapyrazoles can be significantly increased by connecting two AP molecules, forming bis-anthrapyrazoles (Bis-APs). These Bis-APs may interact more strongly with DNA due to an entropically favorable intercalation of both anthrapyrazole units. We have prepared Bis-APs by linking two APs via ester and amide bonds to a variety of flexible carbon linkers. A number of different substituted anthrapyrazole derivatives were also incorporated into the Bis-APs. Details of the design and preparations of the bis-anthrapyrazoles are presented.

68. Histone Deacetylase Expression in 3T3 and KBALB Mouse Fibroblastoid Cells

John P. Wooten, Chemistry and Biochemistry Department

Sponsor: Dr. Kerry Bruns

Cancer has been traditionally characterized as a disease of genetic mutations and deletions that leads to repression of tumor-suppressor genes and/or the hyper-activation of oncogenes. Alternatively, cancer development can result from phenotypic changes due to chromatin structure remodeling. Histone proteins of the chromatin structure may be acetylated and deacetylated by enzymes known as Histone Acetyl Transferases (HATs) and Histone Deacetylases (HDACs), respectively, changing how tightly the histones associate with DNA. Acetylation of positively charged lysine residues disrupts the attraction of the histone proteins to the negatively charged DNA opening the chromatin structure so that transcription factors may reach gene promoter regions. Conversely, deacetylation restores this attraction blocking transcription factors. In this study, HDAC expression was compared between 3T3 and KBALB mouse fibroblastoid cell lines using Western blot analysis and immunodetection. Significantly lower expression of HDAC2 and HDAC4 was observed in KBALB cells indicating that over-expression of genes observed in KBALB cells such as Cathepsin-L, may be the result of chromatin hyperacetylation. Additionally, no phosphorylated HDAC4 expression was observed in KBALB cells. HDAC4, when phosphorylated, is shuttled out of the nucleus where it binds to 14-3-3 protein in the cytoplasm. 14-3-3 protein expression was approximately the same between cell lines, thereby confirming the lack of HDAC4 in KBALB cells as understood by the current mechanism.

69. Exploring Emotional Intelligence and Coping within a Transactional Model of Stress

Julia Poritz, Psychology Department

Sponsor: Dr. Paula Desmond

Conceptualizations of emotional intelligence (EI) suggest that adapting to stressful situations depends on the ability to attend to feelings (Attention), to discriminate among feelings (Clarity), and to regulate feelings (Repair). Proponents of EI consider effective coping as central to EI (Scherre, 2007). According to transactional theory, choice of coping strategy is influenced by personal factors. Thus, the transactional model of stress (Lazarus & Folkman, 1984) provides us with a potential theoretical framework for exploring the relationship between EI and coping strategies. 106 undergraduate students completed an extensive questionnaire that included the Trait Meta Mood Scale (TMMS) and the Coping Styles Questionnaire (CSQ). The TMMS assesses the extent to which individuals attend to their emotions (Attention), feel clear about their emotions (Clarity), and use positive thinking to regulate their negative moods (Repair). Consistent with predictions, Repair was correlated positively with rational coping and negatively with emotion-focused coping and avoidance. Clarity was negatively associated with emotion-focused coping and avoidance and positively associated with rational coping. Attention was correlated negatively with detachment. The findings suggest that the ability to regulate emotion and to discriminate clearly among emotions increases an individual's likelihood of engaging in task-focused or rational coping. Conversely, individuals low in Repair and Clarity are likely to engage in emotion-focused coping strategies. Within a transactional model of stress, EI competencies influence the

selection of coping strategies, and choice of coping strategy directly influences behaviors and adaptive outcomes.

70. Jake Schrum: The Southwestern Legacy  
Staci Rives, Political Science Department  
Sponsor: Dr. Marian Barber

Jake Schrum has a vested interest in the Southwestern community that is evident by his continued involvement in Texas' first and finest university. From being an active student, valuable staff member, and now an influential president, Schrum has been through a lot with Southwestern. He has seen many positive changes around the university over the years, and continues to strive towards excellence. This presentation seeks to observe the nature of Southwestern's community back in the 1960s, when Schrum was a student, and see how he has taken his experiences to further this institution since becoming president in 2000. As president of the university, Schrum has a lot of power and opportunity to influence not only this school, but also the entire Georgetown community and all liberal arts universities across the nation.

71. Reconstructing High-Resolution Images from Multiple Blurry, Noisy Low-Resolution Images  
Tommy Rogers, Mathematics and Computer Science Department  
Sponsor: Dr. Fumiko Futamura

Using super-resolution image reconstruction, it's possible to take multiple blurry, noisy, low-quality images of a scene and use them to construct a single high-quality image in which greater detail is visible. My work has been to analyze two different methods and find a way to combine them. Using a projective group, photographs of a scene taken from slightly different locations (or, multiple frames of low-resolution video) are mapped to a single camera location. Then, the reconstructed image is modeled as a Markov Random Field, and an optimization method is employed to find a single high-resolution still image of the scene. This method can be used, for example, in cheap traffic cameras, where no one photo is clear enough to read a license plate, but the super-resolution reconstruction is.

72. A Kirkwood-Buff Derived Force Field for Thiols, Sulfides, and Disulfides  
Nicholas Cox, Chemistry and Biochemistry Department  
Sponsor: Dr. Nikos Benteitis

Molecular dynamics simulations can provide accurate predictions of experimentally determined properties of physical systems. The accuracy of these simulations is dependent on the accuracy of the force fields that describe the interactions of the molecules. A force field has been developed for molecular simulations of methanethiol, dimethyl sulfide, and dimethyl disulfide mixtures. The force field specifically attempts to balance the solvation and self-association of these solutes in solution mixtures with methanol. The force field is based on the Kirkwood-Buff (KB) theory of solutions and was determined using the KB integrals obtained from the experimental activity coefficients for the solution mixtures. The ability of the force field to be accurate in various systems was tested and confirmed by the accurate prediction of the activity coefficients for methanethiol/dimethyl sulfide solutions. The reasonably low solubility of dimethyl sulfide in water confirmed that the force fields were applicable in aqueous solution. The self-association of methanol molecules at low concentrations in all mixtures is reproducible and was further analyzed.

### 73. Calculator Controversy

Danielle Holland, Education Department  
Sponsor: Dr. Michael Kamen

This project deals with the benefits and detriments of using a calculator in math classes. Through literature reviews, I will seek to clearly explain both opinions. Case studies and curriculum reviews will provide examples of how calculators can be beneficial or harmful in helping students learn math. I will also use observations from classrooms to explain how calculators are being used in today's schools and how it affects students' learning. Interviews with teachers regarding their preference on calculator use will provide insight into realistic views on student learning and the importance of technology in this process. Finally, I will provide examples of both proper and improper uses of calculators in educational settings.

### 74. Should Schools Only Teach Evolution?

Alexandra Nicol, Education Department  
Sponsor: Dr. Michael Kamen

Each day teachers go into their classrooms and put their personal beliefs aside in order to teach children in a way that allows them to make decisions for themselves and choose what they believe on their own. But in public schools students are not given the opportunity to make up their own minds about evolution and creation. The reason for this study is to find out if the schools are right, that only evolution should be taught to children in the school setting and the other theories should be left to the parents or religious leaders; or if the students should be presented with different options, along with evidence for both so that they may have the chance to come to the conclusions on their own.

### 75. Examining the Relationship between Perceived Emotional Intelligence and Trait Worry

Meagan Anderson, Psychology Department  
Sponsor: Dr. Paula Desmond

The ability to effectively regulate emotion is central to all theories of emotional intelligence (EI). Recent conceptual frameworks of EI suggest the need to integrate coping and emotional regulation research (Scherer, 2007). From the viewpoint of appraisal theory (Lazarus, 1968), worry represents a tendency to persevere in recursive reappraisal. One would expect that sustained periods of worry are disruptive to effective emotion regulation. However, emotional intelligence researchers have yet to examine this issue. To address this gap in the literature, a study was conducted to explore the relationship between the trait of worry, which represents a reappraisal tendency, and emotional intelligence. 133 undergraduate students completed the Trait Meta Mood Scale (Salovey & Mayer, 1995) and the Penn State Worry Questionnaire (Meyer, Miller, Metzger & Borkovec, 1990). The TMMS assesses the extent to which individuals attend to their emotions (Attention), feel clear about their emotions (Clarity), and use positive thinking to regulate their negative moods (Repair). Consistent with predictions, repair was correlated negatively with trait worry. In addition, attention was correlated positively with trait worry. Finally, clarity was correlated negatively with perceived stress. The findings of the present study suggest that rumination and stress appraisals interfere with the ability to regulate emotion (Repair). Interestingly, the findings suggest that individuals high in Attention may be prone to persevering in recursive reappraisal (i.e. worry) perhaps due to being unable to arrive at some form of closure.

76. The Relationship Between Social Support and Adaptiveness in Coping With Stress  
Caitlyn Carnes, Meagan Anderson, Psychology Department  
Sponsor: Dr. Paula Desmond

Proponents of emotional intelligence (EI) consider effective coping as central to EI (Matthews, 2007). Although there is a growing body of literature examining the relationship between perceived emotional intelligence and coping, the majority of studies have conceptualized coping as a style (Kohn, 2002). This approach is problematic because it neglects the possibility that emotionally intelligent individuals are flexible in their coping strategies across varying situations. Adaptiveness in coping has been conceptualized as coping consistently across varying situations to lower stress (Kohn, 2002). The present study explored the relationship between emotional intelligence and adaptiveness in coping in students. 133 undergraduate students completed an extensive questionnaire that included the Trait Meta Mood Scale (Salovey & Mayer, 1995) and the Personal Functioning Inventory (Kohn, 2002). The TMMS assesses the extent to which individuals attend to their emotions (Attention), feel clear about their emotions (Clarity), and use positive thinking to regulate their negative moods (Repair). The PFI assesses adaptiveness in coping. Consistent with predictions, repair and clarity were correlated positively with adaptiveness. Attention was correlated negatively with adaptiveness. The findings suggest that the ability to regulate emotion and to discriminate clearly among emotions is associated with flexibility in coping across varying situations. Interestingly, the findings suggest that individuals high in Attention are less flexible in their coping strategies. These findings suggest that EI may play a pivotal role in promoting flexible coping responses in college students.

77. Eccentric vs. Concentric/Eccentric Exercises  
Kaitlyn Pavlicek, Kinesiology Department  
Sponsor: Dr. Jimmy Smith

Tendinitis is a common and painful problem for many athletes and elderly people. Recently, there has been growing interest in the use of eccentric exercise to reduce pain associated with tendinitis. Purpose: The purpose of this study was to determine if a regimen of eccentric exercise could be more beneficial in reducing pain associated with tendinitis than a traditional regimen of concentric/eccentric exercise. Seven college aged women (6 athletes, 1 non-athlete), who had been diagnosed with tendinitis was randomly assigned to one of two groups: Eccentric exercise or concentric/eccentric exercise. Each participant performed her prescribed exercise daily for 12 days. Ratings of pain were recorded, using a visual analog scale, before the start of treatment and again on the twelfth day. ANCOVA, with pretest pain rating serving as the covariate, suggested that eccentric exercise resulted in a significantly greater reduction in rating of pain than concentric/eccentric exercise ( $F(1,7)=25.24, p<0.001$ ). Further, exercise treatment accounted for 86% of the change in posttest rating of pain ( $\zeta_p^2 = 0.86$ ). These results suggest that a regimen of eccentric exercise can be more effective than a traditional regimen of concentric/eccentric exercise in reducing the pain associated with tendinitis.

78. Validation, Verification and Maintenance in the Software Engineering Capstone Project  
Lane S. Hill, Mathematics and Computer Science Department  
Sponsor: Dr. Barbara Owens

The Southwestern University Software Engineering Capstone was given the task of redesigning how LifeSteps Council, a nonprofit based in Georgetown, manages client record keeping. The capstone project is presented in three parts: (1) initial gathering of desired features from LifeSteps; (2) the precise requirements specification of those features along with the actual coding of them; and (3) the verification, validation and planning for maintenance of the system. This abstract covers the final part. Validation ensures the

project was built according to the requirements, given and agreed to by LifeSteps Council. A simulation run with current client information at the LifeSteps office, should ensure that they are satisfied with the product. Verification ensures that the project was built correctly with no errors in the system. This would be done by creating unit tests of small parts of the program at a time, as well as integration tests of how well different parts of the program work together. Two types of tests are run: white-box and black-box. White-box tests go through all possible paths in the system. Black-box tests, however, evaluate different sets of input and make sure that the output is what is expected. The last step in this process, and the most important, is to make sure that the user knows how to maintain the system through documentation. This can be done through video demonstrations, manuals with pictures, comments in the source code, and quick access guides to common operations.

79. Designing a Computer System: Systems Requirements Specification and Coding  
Chris Elliott, J. Michael Party, Mathematics and Computer Science Department  
Sponsor: Dr. Barbara Owens

Southwestern University's senior capstone in computer science designed a record keeping system for the local non-profit, LifeSteps Council. The system should provide LifeSteps with an efficient means of maintaining client records and schedules, as well as generate statistical reports on the data. For presentation purposes the work was divided into multiple steps: A preliminary planning phase called requirements gathering, the exact requirements definition specification and coding phase, and the testing and maintenance phase. The authors will discuss the second of these divisions. The Systems Requirement Specification (SRS) document detailed all of the constraints and requirements of the system in conjunction with their client prior to the beginning of the coding phase. After LifeSteps employees gave feedback on the document, the capstone team began the coding phase of production. The student developers will discuss how the SRS was used for product design and implemented during this coding phase. One of the design options included a Microsoft Access database along with a Graphical User Interface (GUI). Such interfaces allow users to access and modify a database with limited knowledge of the underlying database used. The final product will be verified and validated by LifeSteps and the capstone team. The SRS and implementation can be revised during the testing and maintenance phase as needed.

80. Inhibition of Gene Expression by Using an Anthrapyrazole/Peptide Nucleic Acid Conjugate  
Carlos Cardenas, Chemistry and Biochemistry Department  
Sponsor: Dr. Kerry Bruns

We are interested in directing a cytotoxic intercalating agent to a specific site within DNA. We chose an anthrapyrazole (AP) intercalating agent and conjugated it to a peptide nucleic acid (PNA) complementary to a sequence within the viral T7 promoter. In spectrofluorometric experiments with the AP-PNA conjugate and ds-oligonucleotide targets, we measured changes in fluorescent properties of the AP moiety only when it interacted with specific target sequences. To explore the possibility that this AP-PNA conjugate might inhibit gene transcription, an in vitro transcription/translation system was selected for use with a T7-driven luciferase reporter gene. Using Western blot analysis with an anti-luciferase primary antibody, we were able to detect significant inhibition of gene expression using the PNA alone and with the AP-PNA conjugate. It appeared that the PNA was the main contributing factor to inhibition of gene expression; the effect of the anthrapyrazole was not discernible.

81. The Synthesis and Characterization of Select Cobalt(II) Complexes

Tiffany Salazar, Chemistry and Biochemistry Department

Sponsor: Dr. Willis Weigand

Metallic compounds have been used medicinally for many centuries. Some areas of medicinal inorganic chemistry include understanding essential elements, and developing chelation therapies, radiodiagnostic and radiopharmaceutical agents, enzyme inhibitors, and other therapeutic agents. In the design of metal-based drugs, there are two main objectives to keep in mind, which include controlling the toxicity of the compound and targeting the metal to specific tissues, organs or cells. However, these objectives are especially difficult to satisfy when developing anti-cancer therapeutic agents, and many metallic complexes that have shown anti-cancer activity have not yet entered clinical use because of issues controlling toxic side effects. It is known that cobalt is a constituent of the vitamin B12 molecule and that the presence of this trace element is essential to many living organisms. Current research indicates this cation may have potential for anti-tumor or anti-parasitic activity. Cobalt ethylenediamine complexes have been found to be potent anti-microbial agents. The anti-bacterial and anti-fungal activities of some complexes have been studied against some pathogenic bacteria and fungi: *C. diphtheria*, *E. coli*, *S. typhi*, *S. dysenteriae*, *S. aureus* and *V. cholerae*. The purpose of this work was to synthesize cobalt(II) complexes using cobalt(II) acetate tetrahydrate and select ethylenediamine derivatives to then further investigate their anti-cancer activity. A cobalt(II) complex of N, N'-dibenzylethylenediamine has been characterized by infrared spectroscopy, ultraviolet-visible spectroscopy, nuclear magnetic resonance spectroscopy, X-ray crystallography, as well as physical properties such as melting point and color. Complexes synthesized with other ligands have yet to be studied further.

82. Variations in Phenolic Levels and Antioxidant Properties Among Twenty Basil (*Ocimum Basilicum* L.) Cultivars

Eileen Kwee, Chemistry and Biochemistry Department

Sponsor: Dr. Emily Niemeyer

Although basil cultivars are known to vary greatly in their chemical composition, most previous studies have focused on essential oil composition rather than leaf phenolic levels. In the current work, we determine how antioxidant properties and phenolic levels differ among twenty basil cultivars. Analysis of total phenolic content by the Folin-Ciocalteu method revealed that Mrs. Burns Lemon and Bush basil cultivars had significantly higher phenolic levels than other studied cultivars. DPPH (2,2-diphenyl-1-picrylhydrazyl) and FRAP (ferric reducing antioxidant power) assays correspondingly showed that the antioxidant capacities of the Mrs. Burns Lemon and Bush varieties were also significantly greater than the values determined for other cultivars. Interestingly, HPLC analysis showed that although rosmarinic acid was the dominant basil phenolic for most cultivars, chicoric acid was most prominent in Ararat, Bush, Gecofure, and Siam Queen Thai varieties.

83. Gathering Requirements to Streamline LifeSteps' Record-Keeping

Daniel Bauer, Aaron Kinsman, Mathematics and Computer Science Department

Sponsor: Dr. Barbara Owens

The Senior Capstone in Software Engineering has designed a software application for use by LifeSteps to simplify its record keeping process. LifeSteps' mission "is to eliminate substance abuse in Williamson County through prevention, intervention, counseling, education, and family services." This project focuses on services to families in divorce situations. LifeSteps keeps record of hundreds of clients, along with their personal, court case, and financial information. In order to design a new application for LifeSteps, we had to gather the software requirements from its employees. We had multiple meetings with

various persons involved with the organization. The family services coordinator and the financial manager met with the class to give an initial overview of the system and the problems they were experiencing. Team members went to visit their offices, to watch them use their current system. Others went to observe direct LifeSteps interaction with clients. The final stage of requirements gathering was creation of a pilot project. This pilot or prototype consists of a user interface and some of the functionality believed to be necessary. Two groups were formed to create separate pilots, and each project was presented to the family services coordinator and the financial manager. They were able to see what it would be like to use a new system, and clearly point out what they enjoyed about the system and what needed modification. This helped us to cement the requirements and make a Software Requirements Specification document.

84. Riding Through the Spectrum: Effects of Equine-Assisted Therapy on the Behavioral, Cognitive, and Linguistic Functioning of Children with Autism Spectrum Disorder  
Jill Coffman, Catherine Ertel, Dyann Lopez, Psychology Department  
Sponsor: Dr. Jacqueline Muir-Broaddus

The purpose of this study is to document changes in behavioral, cognitive, and linguistic functioning among 5-12.5 year old children with autism spectrum disorder during 8 weeks of participation in a therapeutic riding program. Certified instructors provided weekly equine-assisted activities and therapy (EEA/EAT) at the Ride On Center for Kids (R.O.C.K). Participants' parents and teachers each completed two standardized rating scales, the Behavior Rating Inventory of Executive Function (BRIEF) and the Pervasive Developmental Disorder Behavior Inventory (PDDBI) at the 1<sup>st</sup> and 8<sup>th</sup> weeks in order to assess changes in cognitive and behavioral functioning over time. At the 2<sup>nd</sup> and 8<sup>th</sup> week, participants' gaze fixation, vocalizations, and on-task behavior were assessed near the beginning and end of their 30-minute riding session. Children of similar ages and diagnoses who did not participate in equine-assisted activities served as a control group. Following the same timetable, control children completed the gaze fixation task and the on-task behavioral assessment, and their parents and teachers completed the questionnaires. When data collection is complete, statistical analyses will test the hypothesis that EAA/EAT has positive effects on children's behavioral, cognitive, and linguistic functioning. This study is important given the paucity of research evaluating EAA/EAT as a treatment modality for children with ASD.

85. Size Doesn't Matter: How Female Apple Snail Size Impacts Reproductive Rate  
Alexis Kropf, Biology Department  
Sponsor: Dr. Romi Burks

High reproduction rates, specifically annual female fecundity, often serve as a key indicator of potential success for invasive species, especially mollusks. *Pomacea insularum*, a highly fecund invasive aquatic species commonly known as the island apple snail, poses a threat to native habitats across the Gulf Coast. Female snails lay bright pink egg clutches, containing around 2000 eggs each, on emergent vegetation and man-made structures. To determine how female size impacted reproductive output, we collected data on the dimensions (length, width, and height), mass, and number of eggs of each clutch (N = 68) from a cohort of more than 36 female snails representing six size classes. For each snail, our tank set-up provided one round and one flat emergent surface for egg laying. We also measured the mass of female snails weekly. Contrary to our expectations, no statistically significant relationship existed between the number of eggs laid and the mass of the female snail that laid the eggs. Female snail mass did not reliably predict clutch length, height, or mass. However, a linear relationship existed between clutch width and snail mass as larger females laid wider clutches. Female snails showed a marked preference for round laying substrates, although no significant differences existed between clutch dimensions from

those two different substrates. Practically, the width of clutches may help estimate the age distribution of an invasive population. Overall, these findings show the alarming fecundity of small juvenile snails, which may pose as great an invasive threat as their older counterparts.

86. DNA Binding Properties of Dichloro-2-(2'-pyridyl) Benzimidazoleplatinum(II)  
Tammy Nguyen, Chemistry and Biochemistry Department  
Sponsor: Dr. Gulnar Rawji

Dichloro-2-(2'-pyridyl) benzimidazoleplatinum(II) was observed to interact with DNA causing it to unwind and rewind in a concentration and time dependent manner. The results also suggest that the binding does not involve intercalation and may involve more than one mode, one of which is similar to cisplatin binding. Preliminary data indicates that as with cisplatin, the (di) aqua form of the complex appears to be the reactive entity as indicated by the substantially increased efficiency of interaction upon aquation of complex prior to incubation with DNA. This binding mode has been investigated in correlation with kinetics of hydrolysis of the Pt(II) complex. The additional interaction through some sort of surface binding was also explored. The results suggestive of the dual mode of binding will be discussed in relation to the complex and ligand structure.

87. Synthesis and Characterization of Select Copper(I) Complexes  
Matthew Dorris, Chemistry and Biochemistry Department  
Sponsor: Dr. Willis Weigand

Since the discovery of cis-platin and metal-based complexes that can function as chemotherapeutic drugs, much of anti-cancer research has centered on the design of metallic complexes of transition metals. Within the last decade, a great deal of research has revolved around the formation and in vitro testing of copper complexes as anti-cancer agents. Less chemotherapeutic research has been performed on copper(I) than on copper(II). This work has been the synthesis and characterization of various copper(I) complexes. Complexes have been prepared by simple techniques from copper(I) acetate and various ligands: N,N'-dibenzylethylenediamine; N,N'-diphenylethylenediamine; bis(diphenylphosphino)methane; and 1,3-bis(diphenylphosphino)propane. The complexes were characterized by methods including melting point analysis, infrared spectroscopy, nuclear magnetic resonance, and X-ray crystallography.

88. Causes and Implications of Female Students' Limited Interest and Success in Fields of Science  
Dylan Hickey, Education Department  
Sponsor: Dr. Michael Kamen

There is an obvious gender gap in science education by which female students tend to be negatively affected. The implications of this gap can be seen in the disproportionate ratio of males to females who enter the science field at the professional level, particularly in the fields of technology and engineering. A review of current literature on the subject reveals theories of causes for this gender gap. It is noted that as female students reach late elementary and early middle school, their interest in the field of science fades and is rarely restored in later grades. One possible explanation for this trend is society influence such as the teacher's own perspective on science. This presentation will evaluate and discuss available literature and findings of limited first-hand fieldwork in an attempt to identify and understand the possible reasons for female students' loss of interest in science. It will also illustrate theoretical means of closing this gender gap, thereby promoting greater female interest in the science field at all levels of study.

89. The Synthesis of Novel Bis-Anthrapyrazoles  
Mary Pennington, Chemistry and Biochemistry Department  
Sponsor: Dr. Sandra Loudwig

Anthrapyrazoles are heterocyclic, planar molecules that are currently being studied as less cardiotoxic alternatives to anticancer drugs. They are intercalating agents that insert between the base pairs of DNA and electrostatically bind to nucleotides causing cytotoxicity in proliferating tumor cells. It has been hypothesized that the binding efficiency can be increased by connecting two anthrapyrazole molecules with a molecular spacer arm. Previously prepared bis-anthrapyrazoles with ester-linked spacer arms have shown better DNA binding efficiency than a single anthrapyrazole, but the effect on the growth of tumor cells was not as significant as predicted. This could be due to the hydrolysis of ester bonds in the linker arm by in vivo enzymes called esterases. Therefore, the ester linkage will be replaced by amide and amine bonds, which are more resistant to hydrolysis. In addition, the spacer will be replaced by polyglycol derivatives to make the drug more water soluble and potentially more bio-available.

90. Interaction of Dichloro(dipyridylquinoxaline)platinum(II) with DNA  
Carissa Fritz, Chemistry and Biochemistry Department  
Sponsor: Dr. Gulnar Rawji

The interaction of  $[Pt(dpq)Cl_2]$  ( $dpq$  = dipyridylquinoxaline) with DNA has been studied by a variety of techniques. The results suggest that the Pt(II) complex binds noncovalently to DNA. Absorbance titrations show a large hypochromism in the absorption for the complex upon addition of DNAs giving binding constants of  $\sim 10^5$ - $10^6$ . In gel electrophoresis experiments, with increasing concentration of the complex, complete unwinding and subsequent rewinding of double stranded DNA is observed while resulting in no cleavage. These results suggest that the binding is through intercalation. Likewise, the fluorescence displacement studies, as well as changes in viscosity of DNA caused by binding of the complex, support intercalation. The DNA melting data shows only a slight increase in the melting temperature of the DNA in the presence of the complex and is thus less conclusive. These results will be discussed with respect to the possible binding modes of the complex to the DNA.

91. The Lion, the Witch, and the War: Changing Representations of War in Children's Literature  
Leslie Lube, English Department  
Sponsor: Dr. Elisabeth Piedmont-Marton

I will present a poster based on my capstone research for Dr. Piedmont-Marton's War and American Literature class. My topic reflects a study of the changing ways in which the topic of war is presented through literature written specifically for children. Our background study for the class involved close analysis of several key texts from the American war literature canon before we began our individual research for a topic of our choosing. Such canonical works as Ernest Hemingway's *A Farewell to Arms* and Tobias Wolfe's *In Pharaoh's Army* helped us to pick out repetitive themes and similar literary techniques that are common throughout the genre. Our experience with the canon demonstrated that it is overwhelmingly populated by the memoirs or pseudo-memoirs of white, male authors. The representations of other viewpoints, including those of children, are markedly absent. My research focuses on two classic works for children—C.S. Lewis's *The Lion, the Witch, and the Wardrobe* and *Prince Caspian*—and the ways that they present the topic of war to

children. I argue that Lewis's portrayal of war is obviously problematic for a post 9/11 audience but that his novels have yet to lose their appeal thanks to one simple authorial choice: the use of talking animals as the vehicles for his pro-war dogma. Through a comparison of the novels with their most recent film adaptations I explore how Lewis makes use of familiar war literature tropes that the filmmakers attempted to but were ultimately unable to subvert.

92. Influence of Sulfur Fertilization on the Antioxidant Properties and Phenolic Content of Basil (*Ocimum Basilicum* L.)

Alexis Ritzer, Chemistry and Biochemistry Department

Sponsor: Dr. Emily Niemeyer

Basil (*Ocimum basilicum* L.) is a culinary herb that is known to contain high levels of antioxidant compounds. In the current study, we determine how sulfur, a key plant macronutrient, impacts the antioxidant properties and phenolic content of three basil cultivars: Dark Opal, Genovese, and Nufar. Five sulfur treatment levels (1.0-5.0 mM) were administered daily during the basil growing season by means of a controlled nutrient solution. After harvest, total phenolic contents were quantified in all basil samples using the Folin-Ciocalteu method, and antioxidant activities were determined using the DPPH (2,2-diphenyl-1-picrylhydrazyl) free-radical scavenging and ferric reducing antioxidant power (FRAP) assays. Quantification of the three most abundant basil phenolics (rosmarinic, caffeic, and chicoric acids) was accomplished by high-performance liquid chromatography. This presentation will illustrate how differences in sulfur fertilization affect the phenolic content, and antioxidant activity of basil.

93. Left out Texas Heroes

Maria Vega, Education Department

Sponsor: Dr. Stephen Marble

Across Texas students are required to take a minimum of one year of Texas History. In many classrooms you will find history being taught through textbooks. These textbooks focus almost exclusively on the involvement of "Texas Heroes" like Jim Bowie, David Crockett and Sam Houston. However, these same textbooks rarely mention and often overlook entirely the important role that native Tejanos played in the fight for independence. Although they sweat blood and tears for Texas, Tejanos like Juan N. Seguin are overlooked by history even though they too were "Texas Heros" that fought to overthrow the dictatorship of Santa Anna. Practices like this are identified by Valenzuela as "subtractive schooling", a widespread practice in Texas schools that minimizes the membership of Hispanics, both Tejano and recently immigrated, in Texas culture. We developed a thematic unit plan that focuses on the starring role native Texans played from the very beginning of Texas History. This thematic unit will help teachers and students better understand how to use multicultural approaches to teaching Texas History.

94. Shaping a Society: The Mexican Soap Opera

Samanda Rivera, Modern Languages and Literatures Department (Spanish)

Sponsor: Dr. Carlos De Oro

My capstone focuses on Latin American culture and identity. The cultures within Latin America are very diverse, even in regions of the same country. However, the rest of the world tends to group all of these countries together. Perhaps this is because many of the countries speak Spanish, they are all geographically together, or because they were all invaded by Europeans. An cultural element that helps construct the Latina American identifies are soap operas. In my project, I will focus on the way Mexican soap operas shape

the identity of the people, more specifically women. I will also discuss social problems that are revealed within specific stories and ideological aspects of Mexican society.

95. Automated Microorganism Detector

Mason Cradit, Matthew Dorris, Andrea Holland, Pelham Keahey, Will Hardy, Steven Solis, Physics Department  
Sponsor: Mr. Gerald Wade

The detection and identification of bacteria in blood samples is a crucial for treating patients suspected of having an 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.

96. Emotional Intelligence and Driver Stress

Lauren Margulieux, Addison English, Alexandra Burbey, Psychology Department  
Sponsor: Dr. Paula Desmond

A study exploring the association between emotional intelligence (EI) and individual differences in driver stress is reported. A total of 121 college students completed a multi-component questionnaire. Three dimensions of EI were assessed using the Trait Meta Mood Scale: attention to emotions, clarity, and repair. The Driver Stress Inventory was used to assess five dimensions of driver stress: Aggression, Dislike of Driving, Hazard Monitoring, Thrill-Seeking, and Fatigue Proneness. Participants also completed the Driving Coping Questionnaire, which measures five coping strategies associated with difficult traffic situations: Confrontive Coping, Emotion-focused Coping, Task-focused Coping, Reappraisal, and Avoidance. High emotional clarity and high emotional repair was associated with Hazard Monitoring and the use of Task-focused coping. Conversely, low emotional clarity was associated with Dislike of Driving and the use of Emotion-focused coping strategies when dealing with difficult traffic conditions. The results suggest that drivers low in emotional clarity may be at risk during stressful driving conditions due to the use of maladaptive coping strategies.

97. Shy to "Fly": Testing the Effectiveness of Self-Presentation Strategies of Shy Individuals

Stacy Mathis, Whitney Laas, Lauren Margulieux, Kathryn Bollich, Psychology Department  
Sponsor: Dr. Traci Giuliano

Shy individuals tend to make negative first impressions on others (Jones, Cheek, & Briggs, 1986). However, research on stigmas has revealed that acknowledging a stigma may improve interactions by decreasing interpersonal discomfort (Hebl, Tickle, & Heatherton, 2000). A separate line of research on excuses has shown that when individuals imply future corrective action, they are perceived more positively than when they do not undertake this strategy (Pontari, Schlenker, & Christopher, 2002). As an extension of previous research, we conducted an exploratory test of acknowledgement and related strategies for improving perceptions of shy individuals. Specifically, 64 undergraduates (42 women, 22 men) read a transcript of one of two versions of an ongoing hypothetical conversation in which a shy individual employed various self-presentation strategies. Participants rated their impressions

of the target after reading each scenario. Separate within-subjects *t*-tests revealed that the shy target made a significantly better overall impression when acknowledgement was used than when no strategy was used. From there, overall impressions were worsened by claiming uncontrollability for shyness, improved by implying future corrective action, and then worsened again by making “self-oriented” statements. For the second version, the target made a significantly better overall impression when shyness was acknowledged by a friend than when no strategy was used. Overall impressions were unaffected by claiming controllability and by implying a lack of future corrective action, but were subsequently improved by making “other-oriented” statements. Importantly, the strategies highlighted in the present study may help shy individuals to make more positive impressions.

98. Exploring Potential Conversational Strategies for Enhancing Impressions of Shy Individuals  
Kathryn Bollich, Stacy Mathis, Whitney Laas, Lauren Margulieux, Psychology Department  
Sponsor: Dr. Traci Giuliano

A staggering 95% of the population has reported experiencing some form of shyness in their lifetime (Zimbardo, 1977), and half of Americans admit that shyness is a problem for them (Haemmerlie & Montgomery, 1982). Unfortunately, shy individuals are also more likely than non-shy individuals to be perceived as less intelligent, less friendly, and less likable (Jones, Cheek, & Briggs, 1986; Paulhus & Morgan, 1997). Little research has explored the strategies that shy individuals can use to change these misperceptions; as such, an exploratory survey was conducted to investigate the perceived efficacy of self-presentation strategies that shy individuals can use to manage others' impressions of them. As part of a larger study, 83 undergraduates (57 women, 26 men) completed a questionnaire assessing social attitudes and behaviors specifically related to shyness. Of particular interest to the present study were items measuring participants' perceptions of the relative effectiveness of several self-presentation strategies. Specifically, we used planned comparisons to analyze the relative effectiveness of the self-presentation strategies used by a shy target. Our results indicated that the strategies of future corrective action and advocacy by others were perceived as most effective overall. Not surprisingly, the strategies of claiming uncontrollability over shyness and showing low effort were perceived as least effective. The present study highlights several self-presentation strategies that shy individuals can use to manage others' impressions of them, and future research is currently underway to experimentally examine the effectiveness of these and other strategies.

99. “I’m Shy”: Improving Misperceptions of Shy Individuals Through Acknowledgment  
Whitney Laas, Kathryn Bollich, Stacy Mathis, Lauren Margulieux, Psychology Department  
Sponsor: Dr. Traci Giuliano

Preliminary survey research on the efficacy of specific strategies (i.e., acknowledgement of shyness, proposed future corrective action, and assured liking of the interaction partner) revealed that participants perceived these strategies to be potentially effective (Bollich, Mathis, Laas, Giuliano, Margulieux, 2009). As such, the present study sought to test the aforementioned strategies experimentally. In an online survey, 193 students (128 women, 65 men) read a transcript of one of four versions of a hypothetical conversation in which a shy person employed various self-presentation strategies (i.e., no strategy, acknowledgement of shyness by the target, proposed future corrective action, or assured liking); participants then rated their impressions of the target after each scenario. As predicted, several independent samples *t*-tests revealed that if individuals acknowledged their shyness—compared to not acknowledging—it improved the overall impressions they made; in addition, implying future corrective action for shyness as well as assuring interaction partners that they were liked improved overall perceptions compared to

acknowledgement alone. In essence, the results of the current study offer evidence about the effectiveness of certain strategies (i.e., acknowledgement, future corrective action, assured liking) for improving perceptions of shy individuals—in addition to corroborating previous research on general impression management and stigmas (Ambady, 2008; Tickle, & Heatherton, 2000). These results suggest that simple strategies can indeed be employed by shy individuals to vastly enhance the overall impressions they make on others—as was implied by preliminary survey research (Bollich et al., 2009).

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## NOTES:

**2010 Student Works Symposium: From Every Voice**  
**EVALUATION FORM**

Indicate the category that most accurately reflects your status:

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

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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

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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*

