

Southwestern University's Core Purpose

Fostering a liberal arts community whose values and actions encourage contributions toward the well-being of humanity

Southwestern's University's Core Values

Promoting lifelong learning and a passion for intellectual and personal growth.

Fostering diverse perspectives.

Being true to oneself and others.

Respecting the worth and dignity of persons.

Encouraging activism in the pursuit of justice and the common good.

The Seventh Annual Southwestern University Undergraduate Research and Creative Works Symposium

Program and Abstracts, Volume VII

Quenching the Thirst for Knowledge

Southwestern University
Georgetown, Texas
April 6, 2006

Members of the Southwestern and Georgetown Community

It is our great pleasure to welcome you to the seventh annual Southwestern University Undergraduate Research and Creative Works Symposium (SUURCWS).

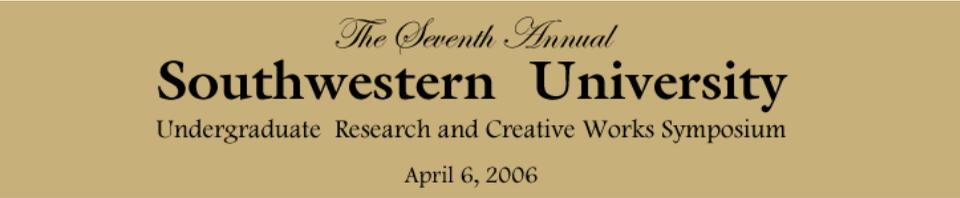
For the past seven years, the Symposium has become one of Southwestern's greatest legacies. Its grand display of the various interests, expertise, and in and out-of-classroom experiences of Southwestern students encapsulates the spirit of a liberal arts education. The Symposium is a celebration of students' ability to utilize classroom knowledge to gain understanding of the world and affect change in Southwestern, the community, and the world at large.

This year, a record high number of 98 presentations will be showcased featuring the works of 125 students from 22 disciplines. The diversity of presentations will hopefully provide an opportunity for the Southwestern and Georgetown community to engage in conversations on thought-provoking topics.

We appreciate your attendance immensely and hope that you leave the Symposium with a wealth of new knowledge. Let your thirst for knowledge be quenched.

Sincerely,

Tracey Einem and Jay Gupta
Program Chairs, Undergraduate Research and Creative Works Symposium



The Seventh Annual
Southwestern University
Undergraduate Research and Creative Works Symposium
April 6, 2006

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2006 SYMPOSIUM PROGRAM CHAIRS

Tracey Einem
Department of Biology
Southwestern University
Beta Beta Beta Honor Society
einemt@southwestern.edu

Jay Gupta
Department of Biology
Southwestern University
Paideia Scholar
Alpha Chi Honor Society
Beta Beta Beta Honor Society
guptaj@southwestern.edu

Undergraduate Research and Creative Works Symposium Online
www.southwestern.edu/academic/symposia/SUURCWS

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Oral Presentations

Session I: McCombs Center, Connie McNab Room

- 4:00 p.m. **1. Distinct Palettes: Feeding Preferences Between Native and Exotic Applesnail Populations**
Brandon B. Boland, Department of Biology, Southwestern University
- 4:15 p.m. **2. Religiosity and Income: Do They Have an Impact on Attitudes Towards Marijuana?**
Alice May Berthelsen, Department of Sociology and Anthropology, Southwestern University
- 4:30 p.m. **3. Lesson Study: Collaborative Teaching Strategies for Calculus I**
Alyssa Pampell, Department of Mathematics and Computer Science, Southwestern University
- 4:45 p.m. **4. Mate Selection Influences the Display of Paced Mating Behavior in Female Rats**
Abby Diehl, Jenifer Cohn, and Elizabeth Joyce, Department of Psychology, Southwestern University

Session II: McCombs Center, Marsha Shields Room

- 4:00 p.m. **5. The Divine Proportion: Fusion of Mathematics, Aesthetics & Nature**
Kelsey Maki, Department of Mathematics, Southwestern University
- 4:15 p.m. **6. Reading into Contraceptives: How Female Literacy Rates Affect the Prevalence of Contraceptives in an International Study**
Jenna Hardy, Department of Sociology and Anthropology, Southwestern University
- 4:30 p.m. **7. L'Imaginaire: Queneau and Bachelard in Dialogue**
Chris Tanguay, Department of Modern Languages and Literatures
- 4:45 p.m. **8. The Inner Workings of the Physical Plant at Southwestern**
Payal Patel and Christina Yagjian, Department of Communication Studies and Department of Religion and Philosophy, Southwestern University

Session III: McCombs Center, Lynda McCombs Room

- 4:00 p.m. **9. Factors that Predict Attitudes toward Immigration: Income and Socioeconomic Status**
Lauren Cox, Department of Sociology and Anthropology, Southwestern University

- 4:15 p.m. **10. Great Expectations: Anxiety and the Writing Center**
Bethany Leidlein, Department of English, Southwestern University
- 4:30 p.m. **11. Making the World a Better Place: Reconstructing the Role of Foreign Organizations and Individuals in the Development of the Third World**
Amy Beth Beaver, Department of Sociology and Anthropology, Southwestern University
- 4:45 p.m. **12. The Spirit of New Orleans**
Ben Woods, Lauren Wolf, and Stacey Faulkner, Department of Communication Studies, Southwestern University

Session IV: McCombs Center, Connie McNab Room

- 5:10 p.m. **13. Writing Center Experience and Training: The Effects of Writing Center Discourse on the Lives of Peer Consultants**
David Carroll, Melida Juarez, August Lemke, and Kandace Lytle, Department of English, Southwestern University
- 5:25 p.m. **14. The Snail or the Egg? Early Life History Factors Contribute to Invasive Success of Applesnails**
Matthew A. Barnes, Department of Biology, Southwestern University
- 5:40 p.m. **15. “You must be a very special person!”: Special Education and Identity Work**
Kelsie Alstead, Department of Sociology and Anthropology, Southwestern University
- 5:55 p.m. **16. Size Matters: Perceptions of Nutrition Through Serving Size**
Emily Taylor and Mark Morrow, Department of Psychology, Southwestern University

Session V: McCombs Center, Marsha Shields Room

- 5:10 p.m. **17. “Some Guys Get All the Luck”: Individual Male Rats are Preferred Consistently During Mating Tests**
Jennifer Lovell, Elizabeth Joyce, and Jose Lopez, Department of Psychology, Southwestern University
- 5:25 p.m. **18. Heinous Confessions: The Use and Implications of Perpetrator Memory and the Holocaust**
Megan Stevenson, Department of History, Southwestern University
- 5:40 p.m. **19. What Lies Within: Constructing Beauty through Advertising in Women’s Fashion Magazines**
Lydia Rudy, Department of Sociology and Anthropology, Southwestern University

97. **Deregulated Expression of BRG1 and E2F Cell Cycle Proteins in an Ovarian Cancer Cell Line, PA-1**
Jay Gupta, Department of Biology, Southwestern University
Mentor: Maria Todd, Department of Biology, Southwestern University

Most cancers harbor defects in one of the G1/S (Rb pathway) cell cycle regulatory proteins, p16 or Rb. In stark contrast, 82% of ovarian cancers and 25% of breast cancers co-express p16 and Rb, thus appearing superficially not to have any Rb pathway deregulation. We previously showed, however, that infection of three p16⁺/Rb⁺ ovarian cancer cell lines with Ad-p16, an adenovirus that overexpresses functional p16, did not result in a G1 arrest, thus indicating existence of a defective Rb pathway in these cell lines. One of the p16-insensitive ovarian cancer cell lines, PA-1, showed an increase in hypophosphorylated (active) Rb following Ad-p16 infection, and the failure of active Rb to arrest cell growth suggested a defect in one of its downstream target proteins. We initially hypothesized that PA-1 may lack functional BRG1—the catalytic subunit of Swi/Snf chromatin remodeling complexes that aids Rb in suppressing the expression of genes that positively regulate the cell cycle. However, PCR and western blot analysis revealed both the presence of the BRG1 gene and overexpression of its protein product. We are currently analyzing the expression of E2F family members—transcription factors normally inhibited by active Rb and previously shown to be deregulated in some human cancers—in PA-1 cells. To date, western blot analysis of E2F1 revealed that this protein was underexpressed relative to a non-tumor cell line, suggesting that it does not play a role in p16-insensitivity in the PA-1 cell line. Our presentation will include further data on the analysis of E2F3 expression.

98. **Two-fold Extrusion Approaches to the Synthesis of Tamoxifen and Related Molecules**
Lauren Shepard, Department of Chemistry and Biochemistry, Southwestern University
Mentor: Frank Guziec, Jr., Department of Chemistry and Biochemistry, Southwestern University

Tamoxifen is a common antiestrogen used in the treatment of breast cancer, but has carcinogenic effects on other estrogen receptor tissues. Tamoxifen belongs to a family of sterically hindered tetra-substituted alkenes that are synthetically prepared through a limited number of methods. One such method is the two-fold extrusion reaction that has not been previously used in the preparation of tamoxifen and related molecules. Synthesis of these molecules grants the opportunity for further exploration of the effects of these antiestrogens on estrogen receptor tissue at a biochemical level.

Mentors: Emily Niemeyer, Department of Chemistry and Biochemistry, Southwestern University and Daniel Taub, Department of Biology, Southwestern University

Soil salinity can negatively affect the growth and overall health of plants. While most are negatively affected by soil salinity, salt tolerance, however, varies from species to species. Studies in some grass subfamilies show a pattern of increased tolerance with higher concentrations of the osmoticant glycine betaine and lower concentrations of ions within their tissues. The salt tolerance mechanisms for the grass subfamily Panicoideae, however, have not been thoroughly examined. We monitored the growth of the newest leaf as well as leaf firing of 7 different species of Panicoid grasses and found that most of these species were negatively affected by soil salinity, although the degree of damage varied. One species, in fact, did significantly better with salt in the soil. Currently we are refining HPLC techniques to measure glycine betaine concentrations in plant samples to see whether a correlation between glycine betaine levels and salt tolerance exists for these grasses. Results thus far have shown that our method for glycine betaine detection was not distorted by the plant extracts themselves.

96. Cultivating Solidarity

Claire Angle, Brandon Boland, Ansa Copeland, Alheli Garza, Robin Hall, and Carlee McConnell, Classics Program, Southwestern University
Mentor: Hal Haskell, Classics Program, Southwestern University

Despite the excessive food production in America, low-income families continue to suffer from food insufficiency, inadequate nutrition, and hunger because they do not have access to inexpensive, quality foods. In an attempt to reduce national hunger, recent programs have focused on helping families cultivate their own foods by creating a personal, sustainable, organic vegetable garden. Personal gardens have been shown to decrease a family's food expenditures and increase their overall nutrition. Stemming from this idea, our Paideia group formed a long-term service partnership with the Williamson County and Cities Health District to assist them in their community gardening program. In the spring of 2005, we constructed two sustainable vegetable gardens on the Health District property. The crops from the gardens have been used in the Health District's Happy Kitchen program and the gardens themselves are being used as an educational tool to help families who want to establish their own garden. Future plans include the continued use and maintenance of the gardens and learning and implementing techniques to increase the sustainability of the gardens.

5:55 p.m. **20. Determining Whether Disturbance Caused by Humans Conducting NAAMP Call Surveys Declines Over Time**
Robert Pena, Department of Biology, Southwestern University

Session VI: McCombs Center, Lynda McCombs Room

5:10 p.m. **21. Small Interference RNA (siRNA)-mediated G1 Cell Cycle Arrest in NIH-OVCAR-3 Ovarian Cancer Cells**
Kristen Meerbrey, Department of Biology, Southwestern University

5:25 p.m. **22. Money and Alcohol Abuse: An In Depth Analysis of Income Level's Effect on Alcohol Abuse in Wet and Dry Counties**
Brian Kasper, Department of Sociology and Anthropology, Southwestern University

5:40 p.m. **23. Tension Between Ideology and Pragmatism in the Foreign Policy of Revolutionary States**
Elizabeth Hoffman, Department of Political Science, Southwestern University

5:55 p.m. **24. Possible Reasons for Donating to the Mothers' Milk Bank**
Candace Loessin and Jessica Harper, Department of Psychology, Southwestern University

Session VII: McCombs Center, Merzbach Room

5:10 p.m. **25. The Library of Lucullus: Symbol of Late Republican Social and Literary Trends**
Catherine Urban, Classics Program, Southwestern University

5:25 p.m. **26. Bitters and Cheers: An Ethnography of Pub Culture at The Churchill Arms**
Andrew Morrison, Department of Sociology and Anthropology, Southwestern University

5:40 p.m. **27. Optimal Conditions for the Houston Toad**
Ashley Swannack, Department of Mathematics and Computer Science, Southwestern University

5:55 p.m. **28. High-tech Cave Hunting**
Ben Lake, Department of Physics, Southwestern University

Poster Presentations and Creative Works

6:10 p.m. Welcome: President Jake B. Schrum
Location: Charles & Elizabeth Prothro Bishops Memorial Lounge, McCombs Center

6:15—7:00 p.m. Session for Poster Presentations and Creative Works. Refreshments served.

Oral Presentations Continued

Session VIII: McCombs Center, Connie McNab Room

- 7:00 p.m. **29. Understanding through Interpreting: The Importance of the Reader to an Understanding of Friedrich Nietzsche's "Thus Spake Zarathustra"**
Jacob Schrum, Department of Modern Languages and Literatures and Department of Religion and Philosophy, Southwestern University
- 7:15 p.m. **30. Dudes' Attitudes: Examining the Influence of choice and Increased Selection of Reading Materials on Young Males' Attitudes About Reading**
Stephanie Smith, Department of Education, Southwestern University
- 7:30 p.m. **31. Barreras del Lenguaje: Children's Negotiation of Adult-Created Exclusionary Structures**
Ali Hendley, Department of Sociology and Anthropology, Southwestern University
- 7:45 p.m. **32. Autism and Executive Function: The Effects of Motivational/Attentional Accommodations**
Christine E. Chalmers, Samantha A. Borrego, and Candace A. Tribble, Department of Psychology, Southwestern University

Session IX: McCombs Center, Marsha Shields Room

- 7:00 p.m. **33. Writing Pain, Writing Pleasure: Considerations for Composition Teachers and Students**
Rebecca Brannick, Department of English, Southwestern University
- 7:15 p.m. **34. Religion, Politics, and Why No One Watches the News: How Religiosity and Extremity of Political Views Affects Confidence in the Media**
Jacqueline Holden, Department of Sociology and Anthropology, Southwestern University
- 7:30 p.m. **35. Anarchy for Kids**
Josh Franco, Department of Art and Religion and Philosophy, Southwestern University
- 7:45 p.m. **36. Inhibiting Telomerase: An Insight into Anticancer Drug Development**
Yasmin Mehta, Department of Chemistry and Biochemistry, Southwestern University

Session X: McCombs Center, Lynda McCombs Room

SSRIs (serotonin reuptake inhibitors), a class of antidepressants, are very useful for the treatment of disorders such as depression; however, they also have side effects. This study was performed in order to investigate the sexual side effects of the SSRI Fluoxetine in female rats. The research was designed in order to lead into further research that might help explain the specific mechanisms of the sexual side effects of SSRIs. In order to investigate the effects of Fluoxetine, 20 female rats were included in the study. Eleven of these subjects were administered Fluoxetine daily for fifteen days, while the other nine female rats were administered saline. Following the chronic administration of Fluoxetine, experimental procedures were executed. Various behavioral measures were used to evaluate the paced mating behaviors of the female rats. Following the experimental procedures, data was analyzed. No significant results were found in this study. However, the Fluoxetine that had been administered to the female rats was found to be significantly less concentrated than originally believed, indicating that there were problems getting the Fluoxetine to go into solution. Therefore, the study evaluated the effects of a much lower dose of Fluoxetine than intended. Further research may find that at the intended dose, Fluoxetine does have an effect on paced mating behavior in female rats.

94. **A Hands On Approach to Broadcast Journalism**
Tatiana Herrera-Schneider, Department of Communication Studies, Southwestern University
David Olson, Department of Communication Studies, Southwestern University and Lessly Stallings, Senior Producer, News 8 Austin

For my collaborative research I am using my internship at News 8 Austin and utilizing the resources that the news station and my mentors can provide me. Southwestern University's Communication program has more of a focus on the analytical side of communication, so my collaborative research has given me the opportunity for a more hands on approach to broadcast journalism. My poster will showcase various aspects of my experience and writing samples of news stories I have done. Included will also be a resume video that will have been critiqued and reviewed by Dr. Olson and various members of the News 8 staff. The resume video, in addition to providing me with on camera experience, will allow me to walk away from the experience with a valuable resource for my career. I will also write a long reflection on my experience and what I have learned from the process and how my liberal arts education is compatible with my experience working as a broadcast journalist.

95. **Taking it with a Grain of Salt: Salt Tolerance Mechanisms of Panicoid Grasses**
Sheeba Varughese, Department of Biology, Southwestern University

barriers, and demographics between high volume and low volume volunteers. The study was conducted through a 30-40 minute phone interview that the participants had previously consented to. Specifically, we hope to find that high volume donors rate reasons that are affiliated with personal well being, altruism, and social interaction higher than low volume donors.

92. **Synthesis and Characterization of Peptide Nucleic Acid for Experimental Use of Directing Anthrapyrazole Derivatives**
James Bradley, Department of Chemistry and Biochemistry, Southwestern University
Mentors: Kerry Bruns and Frank Guziec, Jr., Department of Chemistry and Biochemistry, Southwestern University

Peptide nucleic acids (PNA) are uncharged and achiral DNA analogues known to exhibit enhanced binding and specificity for single-stranded and double-stranded nucleic acids. These synthetic pseudo-peptides lack the sugar-phosphate backbone of traditional nucleic acids and can be designed to compliment specific sequences in DNA. Our study aims to couple the sequence specific binding properties of PNAs with the intercalating capabilities of anthrapyrazole derivatives to see if we can direct the intercalator to a specific region of DNA. As a result, these anthrapyrazole-PNA adducts may display qualities favorable for prolonged gene-silencing or gene-activation. Our PNA was designed to compliment the T7 promoter sequence of PBluescriptKII and thereby bind to the DNA in vitro. The synthesis of the PNA was carried out using Fmoc solid phase peptide synthesis (FmocSPPS), and the structure of the PNA was verified using mass spectrometry with a theoretical molecular weight of $3471.0\text{g}\cdot\text{mol}^{-1}$ and an experimental result of $3478.5\text{g}\cdot\text{mol}^{-1}$. With its identification confirmed, the compound was purified and collected using a high performance liquid chromatography preparative reversed phase column. After purification, a multi-ether spacer was added to the PNA with FmocSPPS, and a biotin-labeled lysine residue was added to about half of the product for further analysis of the intercalator-free compound. A dot blot immunoassay using streptavidin-(horseradish peroxidase) conjugates was conducted on the biotinylated PNA in order to find observable concentrations of the compound for further analysis. In future experiments we plan to see how addition of an intercalator changes binding characteristics by comparing the anthrapyrazole-PNA adducts with the anthrapyrazole-free PNA in an electrophoretic gel shift assay. If the intercalator significantly enhances the PNA's binding ability, then further research with anthrapyrazole-PNA adducts in vivo may reveal this compound's potential as a gene therapeutic.

93. **Effects of Fluoxetine on Paced Mating in Female Rats**
Alison Rector, Department of Psychology, Southwestern University
Mentor: Fay Guarraci, Department of Psychology, Southwestern University

- 7:00 p.m. **37. Comic Books: A Cultural Battleground**
Robin Hall, Department of English, Southwestern University
- 7:15 p.m. **38. Analysis of a Vascularized Engineered Construct**
Barrett P. Cromeens, Department of Biology, Southwestern University
- 7:30 p.m. **39. Tradition Meets Modernity: The Function of Open-Air Markets Cross-Culturally**
Katherine Wright, Department of Sociology and Anthropology, Southwestern University
- 7:45 p.m. **40. Conformity and Social Influence in Female College Students**
Omaira Poonawala, Department of Psychology, Southwestern University

Session XI: McCombs Center, Merzbach Room

- 7:00 p.m. **41. Finding Me Through You: The First-Year Student Struggle to Change and Maintain Identity and Friendship**
Krys Wyatt, Department of Sociology and Anthropology, Southwestern University
- 7:15 p.m. **42. Building the Myth: Antiquity and Contemporary Greek Society**
Billy Ramos, Department of Sociology and Anthropology, Southwestern University
- 7:30 p.m. **43. Forest Stewardship Council Certification as Market-based Social Change: The Case of Futuro Forestal, Las Lajas, Chiriquí, Panamá**
Aubrey Weeks, Environmental Studies Program, Southwestern University
- 7:45 p.m. **44. Among the Shadows and Spaces of Image in Robert Frost's "Desert Places"**
Sarah Hart, Department of English, Southwestern University

Session XII: McCombs Center, Connie McNab Room

- 8:10 p.m. **45. We're Not Special Anymore: Identity Creation, Identity Loss, and Coping Strategies in Former Gifted and Talented Students**
Ashley Heck, Department of Sociology and Anthropology, Southwestern University
- 8:25 p.m. **46. Genetic Algorithms and Neural Networks: The Building Blocks of Artificial Life**
Jacob Schrum, Department of Mathematics and Computer Science, Southwestern University
- 8:40 p.m. **47. Ubiquitin and Heat Shock Proteins in the Severed Ventral Nerve Cord of the Crayfish, *Procambarus clarkii***
Manjah Fernandez, Department of Biology, Southwestern University

Session XIII: McCombs Center, Marsha Shields Room

- 8:10 p.m. **48. How Different Are They?—Friendships in a Home School Support Group**
Annie Garcia, Department of Sociology and Anthropology, Southwestern University
- 8:25 p.m. **49. The Joke No One Got: Humor and Romantic Irony in Beethoven's Eighth Symphony**
Walter Phillip Sterneman III, Department of Music, Southwestern University
- 8:40 p.m. **50. Business as an Agent of Peace: Northern Ireland**
Olivia Smith, Department of Economics and Business, Southwestern University
- 8:55 p.m. **51. El Orgullo de la Pertenencia: Community Museums and the Pride of Identity Ownership in Mexico and the United States**
Anita Fernandez, Department of Sociology and Anthropology and Latin American Studies Program, Southwestern University

Session XIV: McCombs Center, Lynda McCombs Room

- 8:10 p.m. **52. Minding the Gaps: Cultural Patterns on the London Underground**
Nathan Turner, Department of Sociology and Anthropology, Southwestern University
- 8:25 p.m. **53. Developing a Model for MucAB Mutagenesis: Examination of Posttranslational Pathways for MucA/MucA' Regulation in *Escherichia coli***
Ian Bothwell, Department of Biology, Southwestern University
- 8:40 p.m. **54. Income, Income Inequalities, and Education and their effect on Healthcare: a Cross-National Approach**
Phillip Cantu, Department of Sociology and Anthropology, Southwestern University
- 8:55 p.m. **55. Stress Proteins in Crayfish Ventral Nerve Cords Exposed to High Temperature, Severance, Ethanol, and UV Exposure**
Angela Nordin, Department of Biology, Southwestern University

role in Cd resistance in *Pseudomonas*. Understanding resistance mechanisms to heavy metals may play a key role in finding a way to satisfactorily and efficiently resolve the hazards we now encounter in the environment.

90. **Feigned Knowledge Bias: Pretending to Know What You Really Do Not**
Carlee McConnell and Molly Peterson, Department of Psychology, Southwestern University
Mentor: Traci Giuliano, Department of Psychology, Southwestern University

Certain culturally-dictated rules of conversation include the “maxim of quality;” that is, people should not say what they do not have evidence to support (Grice, 2002). In other words, when people are asked a question, their answer should be accurate to the best of their knowledge. However, Tannen (1990) suggests that this maxim is often broken when people give answers to questions even when they have no information on the question that was asked. When posed with a difficult or ambiguous question, some people are more likely to admit from the outset that they do not know the answer, whereas others seem more inclined to generate a rational-sounding answer. This phenomenon has been referred to as the “feigned knowledge bias” (FKB; Newman et al., 1998). The purpose of the current study was to explore other possible factors related to the demonstration of this behavior. After completing three personality scales, 55 undergraduates (26 women, 29 men) answered 20 practice GRE-type questions (8 analogies and 12 antonyms), 6 of which lacked a correct answer choice. Participants who chose an answer on the questions that did not have a correct answer option (i.e., selecting the “Don’t Know” option) were considered to be demonstrating the FKB. The results revealed that there was a positive correlation between the participants’ likelihood of demonstrating FKB and the total number of questions they answered correctly, $r(43) = .35, p = .02$. Intuitively, this observed behavior follows the model of impression formation in that people who perceive themselves as more intelligent would be most motivated to maintain this positive image. Because the desire to maintain a positive impression is motivated by social pressures, future research should investigate this phenomenon in a situation that more closely resembles the social context in which FKB more commonly occurs.

91. **Volunteers Function Inventory as a Function of Milk Donation**
Amanda Gunzelman, Alyssa Barrera, and Kathryn Haskin, Department of Psychology, Southwestern University
Mentor: Richard Osbaldiston, Department of Psychology, Southwestern University

The Mothers' Milk Bank in Austin is a non-profit organization that collects, pasteurizes, and then distributes donated breast milk to premature and ill infants. The purpose of this study is to assess the differences in motivation,

the patients showed complete satisfaction with their current dentist and the professionalism of the office, using a scale of 1 to 10, with 10 being the best, a rating of 9.7 and 9.757, respectively. Furthermore, the patients indicated their various preferences concerning waiting rooms, staff, payment plans, and waiting times. Through the analysis of this survey, I was able to gain a better understanding of factors that influence patient satisfaction in their dental care. The results were used by the participating office to determine practices to maintain and those to consider for review. I hope to be able to use what I learned from this as I enter the field of dentistry.

88. Lifestyle and Demographics of Milk Bank Donors

Savanah Haas and Leigh Mingle, Department of Psychology, Southwestern University
Mentor: Richard Osbaldiston, Department of Psychology, Southwestern University

The Mothers' Milk Bank (MMB) of Austin is committed to collecting human milk for donation to premature infants. These infants are at the greatest risk and human milk is necessary for their survival. Currently MMB does not have any data on their donors; specifically, the women's motivations for donating and the reasons some women donate more than others. Therefore, we conducted a research project to determine why women donate. Additionally, who donates is important to determine where the recruitment efforts should be targeted. Therefore, our presentation covers the lifestyle and demographics of the participants including a comparison of high and low volume donors.

89. CpxP Expression and Regulation in a Cadmium-Resistant *Pseudomonas* Isolate

Greg Hagemann, Department of Biology, Southwestern University
Mentor: Martin Gonzalez, Department of Biology, Southwestern University

Human contamination of the environment with heavy metals such as cadmium (Cd) is a widespread phenomenon. While high levels of Cd are toxic in most organisms, an environmental *Pseudomonas* isolate (S8A) has been found to thrive in such conditions. Upon exposure to high levels of Cd, this isolate expresses a 28 kD protein similar to the *Escherichia coli* CpxP protein. CpxP is a periplasmic protein that protects against extracytoplasmic toxicity via the CpxA/R signal transduction system in *E. coli*. In order to assess the potential role of this apparent *Pseudomonas* CpxP homologue in Cd resistance, a plasmid (pMU4) containing the *Pseudomonas* cpxP gene under the control of an *E. coli*-derived IPTG-inducible promoter was constructed and transformed into the environmental *Pseudomonas* isolate. Expression was induced with IPTG and protein expression confirmed with SDS gel electrophoresis. Our data suggest that CpxP expression can be regulated in *Pseudomonas*. Such regulation of CpxP expression can be utilized to study the protein's potential

ABSTRACTS: ORAL PRESENTATIONS

1. Distinct Palettes: Feeding Preferences Between Native and Exotic Applesnail Populations

Brandon B. Boland, Department of Biology, Southwestern University
Mentors: Romi L. Burks, Department of Biology, Southwestern University, Mariana Meerhoff, Claudia Fosalba, and Néstor Mazzeo, Departamento de Ecología, Facultad de Ciencias, Uruguay

Depending on feeding habits, large aquatic invertebrates such as snails or crayfish may disproportionately impact aquatic habitats. Populations of *Pomacea 'canaliculata'* (genetics uncertain) have spread beyond their native South American habitat and pose a serious threat to aquatic vegetation. However, other native applesnail populations that predominately graze versus consume (i.e. do not preferentially consume whole plant tissue) exist under our ecological radar and pose little threat. My work investigates trends in resource consumption between exotic (Texas) and native (Uruguay) populations. To test how predator cues influence consumption, we presented the exotic population with a choice of whole resources (lettuce, *Lactuca sativa longifolia*, or Eurasian watermilfoil, *Myriophyllum spicatum*), while native populations received a choice of reconstituted *Myriophyllum* from two locations (with or without additional periphyton). We presented all resources in either the presence or absence of a predator fish cue. Cues slightly increased consumption in the exotic population. However, neither periphyton nor a predator cue altered consumption by native snails. To examine influence of plant structure, we presented 2 forms (whole/reconstituted) of 3 plants (lettuce, *Myriophyllum*, and water hyacinth, *Eichhornia crassipes*) to adult applesnails of both populations plus juveniles in Uruguay. The exotic population exhibited slight preference for whole resource and the native population for reconstitute. Both populations failed to substantially consume *E. crassipes* in either form. Native juveniles consumed more than adults. Chemical defense extracts derived from either *M. spicatum* or *E. crassipes* deterred feeding in both populations. Overall, the exotic population avidly consumes whole plant tissue and only avoided *E. crassipes*, while the native population seems to prefer grazing. By mass, native populations consumed nearly five times more than exotic populations. These distinct palettes suggest contrasting ecological roles of consumption versus grazing and may indicate which types of habitats could be most susceptible to applesnail invasion.

2. Religiosity and Income: Do They Have an Impact on Attitudes Towards Marijuana?

Alice May Berthelsen, Department of Sociology and Anthropology, Southwestern University

Mentor: Edward Kain, Department of Sociology and Anthropology, Southwestern University

This paper will report on how religiosity and income affect attitudes towards marijuana. While it is difficult to measure the usage of marijuana, we are able to look at some factors that may predict if a person will use marijuana. In order to conduct this research, I performed a secondary analysis using the National Opinion Research Center General Social Survey (NORC GSS). The GSS employed a multi-stage cluster sample with clusters proportionate to size. In this case, the method of gathering data was through a survey. I hypothesized that, as religiosity increases, the less likely a person is to support the legalization of marijuana. The analysis concluded that in fact, the more a person attended church, the less likely he/she was to support the legalization of marijuana. In addition, a comparative analysis was performed in order to obtain more information so that I may make an informed multivariate hypothesis. In this study, I looked at all fifty states using the U.S. Census Bureau Statistical Abstract of the United States: 2004-2005 from which I found two charts that presented me with data on the "Estimated Use of Selected Drugs by State: 2002" and on the "Median Income of Households in Constant (2001) Dollars by State: 3-Year Averages for 1989 to 2001" that I could apply to my research. I hypothesized that as the median income of the state decreased, the percentage of marijuana users would increase. However, since the results showed a statistically significant positive correlation, my hypothesis was rejected. For the multivariate analysis, I hypothesized that when INCOME98 becomes the control variable, the original relationship between ATTEND and GRASS will remain the same. After all of the analyses were run, I found that the bivariate analysis supported my hypothesis. However, because there was a specification outcome that resulted from the multivariate analysis, my hypothesis was not supported when the control variable was introduced.

3. Lesson Study: Collaborative Teaching Strategies for Calculus I
 Alyssa Pampell, Department of Mathematics and Computer Science, Southwestern University
 Mentor: Cami Sawyer, Department of Mathematics and Computer Science, Southwestern University

Lesson Study is an educational strategy that is becoming more and more common in the United States. It is based on a model popular in Japanese schools, in which a team of educators collaborates to develop a lesson while keeping in mind specific short- and long-term learning goals. Once the lesson is developed, one team member presents the lesson to a group of students while the others observe. Afterward, the team reconvenes to evaluate the lesson, reflect on student learning, and revise the lesson plan as needed. The purpose

is becoming more widely prescribed as a treatment for many conditions, and has been suggested as a modality to improve joint range of motion (ROM). However, little is known about the effectiveness of this treatment modality to increase ROM.

Purpose: This study was done to test the effectiveness of ICT to increase the range of motion (ROM) of glenohumeral joint flexion (FLX), external rotation (ERT), and internal rotation (IRT). Methods: Fourteen intercollegiate tennis players (8 men, 6 women; X (s) age = 19.7 (0.7) yrs) volunteered to participate in this study. ICT was applied to each subject at angles of 30° and 45° at a force of 35 lbs (155.7 N) for 20 min. ROM measurements (FLX, ERT, IRT) were taken pre and post ICT at each treatment angle.

Results: The mean (SEM) for the movement ROM at each angle of application and condition are presented in the table below.

Movement	Angle of Application	Pre ROM	Post ROM
FLX	30°	172.6(4.6)	182.1(4.0)
	45°	179.0(2.2)	188.3(2.8)
ERT	30°	113.1(3.9)	120.6(3.0)
	45°	116.3(2.5)	123.0(2.7)
IRT	30°	111.3(4.1)	121.7(3.6)
	45°	126.8(4.4)	137.3(5.2)

The results of the 2 (30° & 45° treatment angles) x 2 (pre & post ICT conditions) repeated measures ANOVA revealed a significant effect for ICT across both treatment angles for FLX (F = 7.06, p = 0.01), ERT (F = 9.73, p < 0.01), and IRT (F = 9.86, p < 0.01). Interactions between treatment angle and condition were not significant for any dependent variable (p > 0.05).

Conclusion: These results suggest that ICT, applied at both 30° and 45°, is an effective modality for increasing joint ROM at the glenohumeral joint. However, it cannot be determined from these findings whether this effect is limited to an acute improvement in ROM or is more prolonged in nature.

87. "Patient Criteria When Selecting a Dentist" Survey
 Vinitha Jacob, Department of Education, Southwestern University
 Mentors: Rick Hammond, D.D.S., Houston, Texas and Sherry Adrian, Department of Education, Southwestern University

Having a great interest in the field of dentistry and eventually entering it, I was eager to examine what patients found valuable in a dentist and the office environment. In this survey, I posed various questions to the patients about their general expectations in a dentist and a dental office, as well as their level of satisfaction with their current dentist. The survey was administered at the dental office of Dr. Rick Hammond D.D.S. in Houston, TX. In total, 75 surveys were completed and the data analyzed. Overall, the vast majority of

The study focuses on the differences between low and high volume donors at the Austin Mothers' Milk Bank. A 30-minute telephone survey was administered to 50 donors. Low volume donors reported more barriers to donating problems during donating than high volume donors. The purpose of the study was to evaluate the experiences of low and high volume donors in order to increase breast milk donation from the low volume group.

85. It Isn't Easy Being Green: Effects of Simulated Herbivory and Wounding on the Growth and Reproduction of an *Amaranthus* Hybrid
Sara Huie, Department of Biology, Southwestern University
Mentor: Daniel Taub, Department of Biology, Southwestern University

This study examines the effects of simulated herbivory and wounding on the growth and reproduction of an *Amaranthus hypochondriacus* X *Amaranthus cruentus* hybrid. Patterns of simulated herbivory and wounding included small perforations, large perforations, and slicing. These treatments were performed at 2 levels of overall plant damage (6 and 12% of total plant leaf area). Treatments were performed on the 4 youngest fully expanded leaves of 130 plants that were grown in the Southwestern University greenhouse. Variables related to plant fitness were compared among treatments, including plant heights, number, and weight of leaves and seeds produced, and plant biomass. There was a non-significant trend in which removing leaf tissue with small perforations was more detrimental to plant seed production than removing the equal quantity of leaf tissue with large perforations. There was a significant (although weak) negative relationship between the level of wounding and the total number and total weight of seeds produced by a plant. There were no differences between plants that were merely wounded by slicing (with all leaf tissue left in place) and treatments in which an equivalent amount of leaf was wounded, but with the leaf tissue removed (perforation treatments). These results suggest that overall, wounding without removal of plant tissue can be as harmful to a plant as herbivory. This may be due to the decreased ability of the leaf to photosynthesize and distribute resources within the leaf, inflorescences, and plant in general.

86. Effects of Intermittent Cervical Traction on Glenohumeral Flexion and Internal and External Rotation
Wade A. Green, Department of Kinesiology, Southwestern University
Mentor: Jimmy C. Smith, Department of Kinesiology, Southwestern University

Intermittent cervical traction (ICT) is a method of manual therapy that

of the lesson study is to evaluate student learning as opposed to how the lesson itself is taught. This presentation will focus on a Lesson Study lesson plan developed by a team of professional and pre-service educators and presented by the pre-service teachers to a college Calculus I class as part of a mathematics Capstone course. We will report and reflect on the observations of student learning made by the team and share general experiences and feelings of collaborative teaching strategies.

4. Mate Selection Influences the Display of Paced Mating Behavior in Female Rats
Abby Diehl, Jenifer Cohn, and Elizabeth Joyce, Department of Psychology, Southwestern University
Mentor: Fay A. Guarraci, Department of Psychology, Southwestern University

In the present study, mating behavior was observed in female rats that were given the choice to mate with two males simultaneously to investigate the effects of mate choice on paced mating behavior. In Experiment 1, three groups of female rats were tested: 1) sexually naïve, ovariectomized (OVX) rats primed with estrogen (EB) and progesterone (P); 2) OVX rats primed with EB and P tested one week after sexual receptivity testing, and 3) sexually naïve, naturally cycling rats tested in proestrous. Each female rat received at least one ejaculation from both males during mating tests. One male rat was determined to be the preferred male, if the female rat spent more time with him. Female rats in all three groups behaved similarly; independent of hormone condition (OVX/EB + P, or naturally cycling) or sexual experience, female rats were less likely to leave the preferred male than the non-preferred male following intromissions. However, when the female rats did leave the male following intromissions, they returned to the preferred male faster than to the non-preferred male. In Experiment 2, the sexually naïve, OVX hormone-primed rats from Experiment 1 were tested with the same pair of male rats for 3 additional mating tests that were conducted once weekly. During these additional tests, the female rats always preferred one of the two male rats. Across all four mating tests, the female rats preferred the same one male rat approximately 70% of the time, which is significantly greater than would be expected by chance ($p < .01$). Consistent with Experiment 1, female rats were less likely to leave the preferred male than the non-preferred male following intromissions, but when they left, they returned to the preferred male faster than to the non-preferred male across all four mating tests. The findings of the present study indicate that not only do female rats show a preference for one male when given the opportunity to mate with two male rats simultaneously, their pacing of sexual stimulation is enhanced. The present study is the first to demonstrate a link between measures of paced mating behavior and sexual motivation/mate preference.

5. **The Divine Proportion: Fusion of Mathematics, Aesthetics & Nature**
Kelsey Maki, Department of Mathematics, Southwestern University
Mentor: Anand Pardhanani, Department of Mathematics and Computer Science, Southwestern University

The divine proportion, also known as the Golden ratio, has captivated the minds of mathematicians, artists, and philosophers for centuries. This unique ratio arises in mathematics in a variety of conceptual settings, particularly in number theory and geometry. The remarkable aesthetic attributes of the Golden ratio are seen not only in its visual manifestations in geometry, but also in the more abstract realm of its arithmetic properties. In fact, the structure and elegance of these properties is as aesthetically special as its manifestations in any other area. Thus, from a mathematical point of view it is only natural that this ratio, and its elegant structure, are widely seen in other areas that give us aesthetic pleasure, including nature, and works of art. The elegance of this ratio and its prominence in nature also raises questions about its ability to explain the world around us, leading to philosophical questions about its purpose, origin, and application. This is why the Golden ratio has come to be known as "the divine proportion."

The focus of this work is on studying and exploring the applications of the Golden ratio in art, nature, and philosophy. Key properties based on both number theory and geometry will be explored, with an emphasis on making connections between these areas.

6. **Reading into Contraceptives: How Female Literacy Rates Affect the Prevalence of Contraceptives in an International Study**
Jenna Hardy, Department of Sociology and Anthropology, Southwestern University
Mentor: Edward Kain, Department of Sociology and Anthropology, Southwestern University

Many factors affect the way in which contraceptives are used. On a micro and macro level, other researchers have studied the ways in which personal ideologies, such as morals and religion, and public circumstances, such as literacy rate, affect access to contraceptives. Data from the United States Census Bureau contain statistical tables, demographic, and socioeconomic data for 227 countries. The comparative analysis in this paper will work with a smaller subset that holds all the appropriate data. As well, data collected from the World Development Indicators include variables later discussed. The effects on the prevalence of contraceptives have been further studied using other variables such as level of education, specifically literacy rate per country, level of income from each of the countries studied operationalized as the Gross Domestic Product per capita, and the countries' percent of religiosity. These variables help contribute to the rise and fall of the prevalence of contraceptives.

challenges and lessons learned from the process of bringing "su-students: email wars" to life.

82. **The Big Five Inventory and Breast Milk Donation**
Eric Sterner, Crystal Ramirez, and Krystol Farmer, Department of Psychology, Southwestern University
Mentor: Richard Osbaldiston, Department of Psychology, Southwestern University

The Mothers' Milk Bank at Austin is an organization that collects and pasteurizes donated milk from healthy breastfeeding women in order to dispense it to premature and sick infants. Premature and sick infants are in a fragile condition, and human milk greatly improves their health. The purpose of this study is to collect donor information and construct a typical donor profile to aid the milk bank in their recruiting efforts. The Big Five Inventory measures five components of the personality characteristics of the donors. The implications of this research will assist in recruiting and outreach efforts.

83. **Reluctant Reformer: Prime Minister Koizumi in Foreign Policy**
Christopher Bailey, Department of Political Science, Southwestern University
Mentor: Alisa Gaunder, Department of Political Science, Southwestern University

In my paper entitled "Reluctant Reformer: Prime Minister Koizumi in Foreign Policy," I explore whether or not Prime Minister Koizumi is an effective leader. In the United States, many have the impression that Prime Minister Koizumi is a new and dynamic leader who is challenging the very system that put him in power. The key problem with these assumptions is that they are impressionistic and fail to engage a clear standard for assessing effectiveness. If you measure an effective leader by how much of the policy agenda is achieved, then Koizumi falls short. The nuances of Koizumi's strength are difficult to understand without seeing the confinements that are placed upon him by domestic and international constraints. The reality of the Tokyo environment went against many of the articles and research I had done in the U.S., and I only gained this knowledge by being in Tokyo where these events are taking place daily. Drawing on evidence from scholarly journals and news articles as well as first hand interviews with several professors and politicians in Tokyo, Japan, I argue that though Koizumi has made strides in his achievements as Prime Minister, he still has not attained the sweeping reforms he once promised.

84. **Potential Barriers to Donating Breast Milk**
Becky Merrill and Sally Redden, Department of Psychology, Southwestern University
Mentor: Richard Osbaldiston, Department of Psychology, Southwestern University

then up to health districts in the area to promote walking and try to get people in the habit of walking instead of driving places. Walking instead of driving will increase people's daily physical activity and improve their overall health.

80. Struggle for Democracy: D.C. Voting Rights

Monica Anderson, Department of Political Science, Southwestern University
Mentor: Bob Snyder, Department of Political Science, Southwestern University

Washington, D.C. is home to over 500,000 citizens but because of constitutional, social, and political constraints, these citizens do not have representation in federal government. During my time in Washington, D.C., I was able to research and analyze many of the issues surrounding the fight for voting rights in the District. These issues revolve around the everyday decision-making that is often left up to federal instead of local officials; therefore, problems such as education are often not handled properly because they have no means to do so.

This project is an attempt to understand the political, social, and economic reasoning behind the failure to grant D.C. voting rights. I will take a look at the history of the movement, as well as, the opposition to the plan.

81. su-students: email wars

Natalie Goodnow, Department of Theatre, Southwestern University
Mentor: Sergio Costola, Department of Theatre, Southwestern University

What are the differences between a debate and a dialogue? What are the differences between communicating through email as opposed to communicating in person? What repercussions do the answers to these questions have on Southwestern students? Do our "email wars" help to build a sense of community, or are they destructive? What happens when the topic of conversation shifts from global and national events to ones that have occurred on our own campus? What kind of power do our words have to harm other people? Do we wield that power responsibly?

These are the kinds of questions that "su-students: email wars" asks. "su-students: email wars" is a play that consists of dramatizations of the heated debates that took place on the su-students email listserv during the Fall 2005 semester. It will be performed on April 4 and 5, 2006, followed by a facilitated dialogue session and community forum, which will allow Southwestern students the opportunity to discuss, in person, the issues addressed in the performance.

The dramatizations of the emails are being collectively created by a cast of fifteen Southwestern students. In addition to creatively addressing the need for healthy communication about difficult issues, the project also offers these students the opportunity to explore alternative models of collaboration and leadership in theatre-making. This presentation will address the unique

The conclusions have shown that the larger the level of literacy, the prevalence of contraceptives goes up. Furthermore, the other variables such as income and religion affect the outcome of the prevalence of contraceptives in each of the countries.

7. L'Imaginaire: Queneau and Bachelard in Dialogue

Chris Tanguay, Department of Modern Languages and Literatures, Southwestern University
Mentor: Suzanne Chamier, Department of Modern Languages and Literatures, Southwestern University

Raymond Queneau was a French author and poet who is known for his early involvement with the Surrealists, and for his role as the co-founder of "l'OuLiPo"—or The Workshop of Potential Literature—which concerns itself primarily with the development of new literature and poetry in a non-random fashion through the use of constraints. Queneau's poetry, in addition to an exploration of the power of constraints, is a veritable exercise in utilizing images to plumb the depths of the human imagination.

When addressing imagination, it is useful to bring the ideas of Gaston Bachelard—one of Queneau's contemporaries, and a writer whose work Queneau was most likely aware of—into the discussion. Though neither a mathematician nor a poet, Bachelard was a philosopher of science and poetry and is known for his work in the development of theories of reading poetry using images and imagination as a base.

Queneau's body of poetry is primarily read in the context of the OuLiPo, and thus examinations of the importance of the imaginaire in his works are few and far between. Therefore, it seems highly appropriate to put the works of the two writers into dialogue with one another. To this end, I have developed a reading of Queneau's Fendre les flots utilizing the philosophy of poetry and images presented in Bachelard's La poétique de l'espace. It is important to note however that this presentation is not a direct translation of my work, but is rather a companion piece; a look at the lives and work of these two writers and how I was able draw forth the voices of each text in order to obtain a new reading of Queneau's Fendre les flots.

8. The Inner Workings of the Physical Plant at Southwestern

Payal Patel and Christina Yagjian, Department of Communication Studies and Department of Religion and Philosophy, Southwestern University
Mentors: Bob Bednar, Department of Communication Studies, Southwestern University, Michael Bray, Department of Religion and Philosophy, Southwestern University, Joe LePage, Physical Plant Department, Southwestern University and Bob Mathis, Fiscal Affairs Department, Southwestern University

The goal of this project is to present to the best of our ability, an unfiltered perspective into the workings of the physical plant in hopes of raising the level of awareness and respect within the Southwestern community. The physical plant staff takes on tasks that go unnoticed by students and faculty. However, we hope that with this video the situation will improve. The video will shed some light on the important work that all the staff members do not only because it is their job, but because they want to make our lives that much more comfortable. Physical plant is an extensive department and though we tried to include all departments, we were limited due to time. Those that are not shown in the video are a vital component of Southwestern and they should not be forgotten. We collected our research for the video through observation of daily tasks, and personal interviews with the staff. We aim to have this video shown annually during freshman orientation in the hopes that incoming students will be aware of the workings behind the scenes. We owe many thanks to the physical plant staff and we hope that this video will break down the walls that keep the staff hidden.

9. Factors that Predict Attitudes toward Immigration: Income and Socioeconomic Status

Lauren Cox, Department of Sociology and Anthropology, Southwestern University
Mentor: Edward Kain, Department of Sociology and Anthropology, Southwestern University

This paper reports on the relationship between income and attitudes toward immigration as well as the relationship between socioeconomic status and attitudes toward immigration. Because of a steady rise in the number of immigrants migrating into the United States, it is necessary to study the reception of these migrants into the country. I predict that people with a lower income will hold negative attitudes toward migrants because most of these immigrants will be seen as competition in the job force. Likewise, I predict those with a lower socioeconomic status will hold negative attitudes toward immigrants. I control these relationships with political party affiliation because each political party holds different ideals and feels differently about government spending. To analyze my hypotheses, I performed secondary analysis with the data gathered by the National Opinion Research Center General Social Survey. I found a weak positive relationship between income and attitudes toward immigration. However, when controlling for political party affiliation, I found a stronger suppressed relationship. I found a weak positive relationship between socioeconomic status and attitudes toward immigrants. The relationship is specified when controlled for political views. These findings promote the necessity of job availability and training for those of the lower class so that both Americans and migrants can be ensured with job opportunities.

refractory to low dose estrogen but, like HEC1B cells, were completely growth inhibited by 100 μ M estrogen. When ER positive HEC 1A cells were treated with higher concentrations of 4-OH TAM, no inhibition was observed at 1 μ M whereas at 10 μ M, a steady decline in cell growth was found. Similar to HEC 1B cells, complete inhibition was observed at 100 μ M within 24 hours. In order to determine if apoptosis is the underlying mechanism of cell death, we incubated HEC 1B cells with 10 μ M 4-OH TAM for 24 hours and assayed for DNA laddering and expression of the pro-apoptotic protein, caspase 8. Preliminary data did not indicate involvement of an apoptotic pathway. These results suggest that 4-OH TAM is promoting cell death via necrosis.

78. The Effects of Clomipramine Administration on the Paced Mating Behavior of Female Rats

Matthew Espinosa, Department of Psychology, Southwestern University
Mentor: Fay Guarraci, Department of Psychology, Southwestern University

Previous studies have shown clomipramine to decrease sexual functioning in women. The current study examines the paced mating behavior of female rats administered clomipramine (5.0 μ g/ kg ip) for 18 days. It was hypothesized the clomipramine would disrupt paced mating in female rats; however, rats administered clomipramine for 18 days did not differ significantly from rats administered a saline solution. The lack of effect of clomipramine at the current dose and duration of time may indicate that a higher dose and/or a longer duration of time are needed to create a disruption in paced mating of female rats.

79. Walkability Study of Downtown Georgetown, Texas Spring 2005

Heather Saegert, Department of Kinesiology, Southwestern
Mentors: Jimmy Smith, Department of Kinesiology, Southwestern and Marge Tripp, Williamson County and Cities Health District

Today's society has seen growing rates of obesity and the overall health of Americans decrease. One of the ways to try and stop the obesity epidemic is to make a community more walkable. This study investigated the walkability of the downtown area of Georgetown, Texas during the spring of 2005. The area observed is currently zoned for single-family residential and downtown commercial. This allows this area to be easily accessible for people to walk to downtown from their homes and for employees in the downtown area to walk to the restaurants and businesses in the area. The basic infrastructure of a gridiron is already in place; what is missing is the lack of sidewalks, crosswalks, and other features that make a community more walkable. These features need to be put in place to allow people to easily walk to and from destinations. When the right features are put into place to make communities walkable, it is

University

Mentors: Diana Tenckhoff, Department of Art, Southwestern University
Tim O'Neill, Department of Political Science, Southwestern University

For my collaborative works, Dr. Diana Tenckhoff, Professor of Art History, and I have been working closely, to improve, mold, and enhance the very recent introduction and implementation of the Asian Art History program, supported by the Freeman grant.

These collaborations include, but are not limited to: providing student feedback/perspective on class ideology, implementation, and response; organizing a lecture and dinner concerning Chinese painting; researching new books, ideas, mediums for which to properly relay information to a large group of students; help lay the foundation/research for the first Asian Art History Capstone to be held Fall 2006; survey students periodically throughout the semester to gauge course evaluation in a more proper/suitable manner than university-related course evaluations; and assist in general research for Dr. Tenckhoff's field of study; etc.

I will present my findings/research/progress/results on a poster at the symposium.

77. Effects of 4-OH Tamoxifen on HEC 1B Endometrial Cancer Cells

Tracey Einem and Carolina Boet, Department of Biology, Southwestern University
Mentors: Maria Cuevas, Department of Biology, Southwestern University, and Maha Zewail-Foote, Department of Chemistry and Biochemistry, Southwestern University

Tamoxifen, a well-known drug for breast cancer treatment, has been found to be an estrogen antagonist in the breast, but a partial estrogen agonist in the endometrium. In addition, tamoxifen metabolites have been shown to produce DNA adducts in a variety of tissues. In this study, we investigated the potential of 4-OH tamoxifen (4-OH TAM) to exert proliferative effects via an ER independent pathway. For this purpose, we used the ER negative human endometrial adenocarcinoma cell line, HEC 1B, and compared results with the ER positive human endometrial adenocarcinoma cell line, HEC 1A. We treated ER negative HEC 1B cells with different estrogen and 4-OH TAM concentrations ranging from 0-100 μ M and incubated at 37 $^{\circ}$ C, 5% CO₂ atmosphere. Using a dye-exclusion assay and colorimetric method (MTS Assay), we observed that lower concentrations of 4-OH TAM had little effect on HEC 1B cell proliferation. However, at higher concentrations (10,100 μ M), cell proliferation was inhibited by almost 100% within 24 hours. When HEC 1B cells were treated with different doses of estrogen, we observed an initial proliferative response after 24 hours at low doses, followed by a partial inhibition of growth after 2 to 3 days. However, at the highest dose (100 μ M), we observed a complete inhibition of cell proliferation. In contrast, ER positive HEC 1A cells were

10. Great Expectations: Anxiety and the Writing Center

Bethany Leidlein, Department of English, Southwestern University

Mentor: Elisabeth Piedmont-Marton, Department of English, Southwestern University

Though much of the current scholarship on writing centers addresses the ways in which consultants can help calm nervous students' paper-writing anxiety, I propose that it is also the writing center's place to serve as an agent of destabilization in the writing process by installing anxiety where it did not formerly exist. Stress does not always harm; a low-grade stressor can actually improve one's performance when complacency would willingly accept mediocrity. While consultants must continue to help students battle the paralyzing effects of writing "stage fright", we would do well to understand the value in upsetting the usual processes of writing. Jolted out of his comfortable routine, the writer becomes aware of his novice status and is more open to growth. As long as the student realizes that he can improve, the rigor of an exacting, unsettling experience at the writing center can result in a far better writer rather than a soothing session.

11. Making the World a Better Place: Reconstructing the Role of Foreign

Organizations and Individuals in the Development of the Third World

Amy Beth Beaver, Department of Sociology and Anthropology, Southwestern University

Mentor: Melissa Johnson, Department of Sociology and Anthropology, Southwestern University

In this paper, I use my experience between April 2005 and May 2005 of living with and observing the interactions of American missionaries doing development work in a small rural village in central Bolivia to think more widely about the place foreign organizations and individuals inhabit in the process of the development of the third world. By looking at the development projects, worker attitudes, flow of resources, and representation of the projects in the United States, problems and conflicts, such as the need to achieve true sustainability, the existence of unequal power relationships, and the practice and perpetuation of racism, can be seen and understood. Also, there is a need to define or redefine what development is considered to be. I present a definition centered on using the local and available resources to increase the quality of life. From here, a critique of some types of existing development practice can be made and this critique can be used in constructing a different model of how foreign organizations and individuals should (if they should) be involved in the development process in a healthy and positive way.

12. **The Spirit of New Orleans**
Ben Woods, Lauren Wolf, and Stacey Faulkner, Department of Communication Studies, Southwestern University
Mentor: David Olson, Department of Communication Studies, Southwestern University

Our group would like to create a documentary that explores the effects of Hurricane Katrina on New Orleans and its residents. The film will focus on the lived experiences of individuals and on the process of rebuilding what once was. We will interview refugees, city officials, and relief workers when in New Orleans. While there, we will collect footage of the city and the rebuilding process. Ultimately, we will compile and edit the footage to create a documentary between thirty to sixty minutes long. This documentary is about hope in the face of adversity.

We believe this documentary will inspire the Southwestern community to be active participants in the communities that surround them. Our hope for this film is to inspire students to live Southwestern's Core Purpose and Core Values and make a dedication to the well being of humanity through activism.

13. **Writing Center Experience and Training: The Effects of Writing Center Discourse on the Lives of Peer Consultants**
David Carroll, Melida Juarez, August Lemke, and Kandace Lytle, Department of English, Southwestern University
Mentor: Elisabeth Piedmont-Marton, Department of English, Southwestern University

The writing center is often overlooked or misinterpreted as a site for “unskilled” writers to receive remedial assistance from tutors who have been well-instructed in grammar. However, in spite of misconceptions, we believe that our qualified student consultants at the Debby Ellis Writing Center in Southwestern University are doing important work for themselves, their peers, and consequently, the University. Mirroring the work conducted by Paula Gillespie of Marquette University, we conducted a study with the primary task of discovering how the writing center and peer consultant training affected peer consultant’s lives during/post undergraduate studies. The primary source of data in this project came from surveys, which were issued to Southwestern alumni that had experience working in the writing center from its opening in 1999 through 2005. Responses were assessed and we propose to present the cyclically beneficial nature of the existence of student-staffed undergraduate writing centers. While our existing research has proved invaluable to this process, we plan to continue gathering data in order to explore further implications of our initial results.

14. **The Snail or the Egg? Early Life History Factors Contribute to Invasive Success of Applesnails**

connection between the Southwestern and Georgetown communities at large, while also allowing both Spanish and English speakers of all ages a chance to learn new vocabulary words and phrases in another language. For Southwestern students and faculty, this project offered us an opportunity to explore alternative methods of collaboration, leaving us with valuable lessons learned about the advantages and challenges of shaking up the traditional hierarchy of the theatre.

74. **Weed Control Without Herbicide**
Ryan Ubias, Environmental Studies Program, Southwestern University
Mentors: Daniel Taub, Department of Biology, Southwestern University and Patrick Veerkamp, Department of Art, Southwestern University

Every organism has a unique set of environmental conditions under which it thrives, as well as a set of conditions under which it perishes. By subtly manipulating the environment, unfavorable species may be eliminated while desired species may live. Thus, the key to maintaining a lawn free of weeds is to set up an environment that favors only the grass, while making conditions too harsh for any weed to survive. Many species of lawn turf are salt-tolerant. If, then, the soil is saline enough, can an environment be created in which only the grass may be allowed to flourish?

75. **Women in National Level Politics—A Case Study of Female Legislators in Japan**
Lissa Terrel, Department of Political Science, Southwestern University
Mentor: Alisa Gaunder, Department of Political Science, Southwestern University

Worldwide, the number of women in national level politics is mediocre at best. A combination of both institutional and cultural constraints hinders their ability to not only get elected, but once elected, influence legislation or gain positions with more than symbolic power. The case of Japanese politics is not an exception to this informal rule. Many Japan scholars look only at women in local politics, or their role in social movements, ignoring completely women on the national political level because there are just so few. However, my research focuses on the Japanese female legislators who have been the exception and have found a way to influence legislation despite the barriers. Using the case studies of three prominent Japanese female legislators, Doi Takako, Fukushima Mizuho, and Mayumi Moriyama, Dr. Gaunder and I investigated how the use of personal attributes and tools facilitated them to circumvent constraints and influence policy to some degree.

76. **Establishing the Foundation of Asian Art History**
Arbye Curtis, Department of Art and Department of Political Science, Southwestern

evaluation survey at the end of the course to record data. In Dr. Neville's class I served as an active member in the class, giving speeches and actively engaging students. I also spent time observing students during class time. In Dr. Parks' class, I served strictly in an observational role and also students could contact if they had questions. Overall, observation and survey results were the methods used to make assumptions.

72. **Synthesis and Theoretical Evaluation of Several Benzoquinone Mustards**

Lindsay Jones, Department of Chemistry and Biochemistry, Southwestern University
Mentors: Frank Guziec, Jr., Department of Chemistry and Biochemistry, Southwestern University and Steven Alexander, Department of Physics, Southwestern University

We have synthesized a series of benzoquinone nitrogen mustards with various 'meta' and 'para' substituents. The steps involved in this process will be described in detail. We have also performed docking calculations of these and other quinones with the enzyme Dt-Diaphorase. There is good agreement between our binding energies and previously published kinetics data for the reductive activation of these compounds.

73. **La hormiguita Juanita**

Natalie Goodnow and Cliff Miller, Department of Theatre, Southwestern University
Mentors: Sergio Costola and Desi Roybal, Department of Theatre, Southwestern University

Inspired by the arrival of Cuba Plastica to Southwestern, an art exhibit containing works of recent Cuban art, theatre professors Sergio Costola and Desi Roybal began to brainstorm about a touring theatre production that could bring a little bit of Cuba to Georgetown's elementary schools as well. Professor Sergio Costola completed the preliminary research necessary for the project, searching for Cuban children's stories and folktales. Southwestern theatre major Natalie Goodnow found a story by Teresita Rodriguez-Baz that struck her as particularly entertaining and adaptable, La hormiguita Juanita (Juanita the Little Ant). Natalie translated the story into English, and shared both versions, English and Spanish, with Professor Desi Roybal's Scenic Design class. The class worked together to create a colorful, imaginative set and costume design to help bring the story to life. Natalie also worked with a cast of fourteen actors to transform the two versions of the story into a single, bilingual performance. Technical Director and Southwestern theatre major Cliff Miller led the cast in constructing the transportable set and costume pieces, and also acted as a sound designer, providing pre-show and post-show music. The production then toured Ford, Cooper, Frost, Carver, and Annie Purl Elementary, performing to over 1,900 first, second, and third-graders.

The performances provided an opportunity to forge a friendly

Matthew A. Barnes, Department of Biology, Southwestern University
Mentor: Romi L. Burks, Department of Biology, Southwestern University

High fecundity and wide environmental tolerances provide ecological advantages to many aquatic invasive species, including freshwater applesnails of the genus *Pomacea*. Egg clutch survival and subsequent hatchling growth represent the first steps toward establishing a viable population capable of producing negative ecological and economic impacts. This study compares and contrasts early life history characteristics between two applesnail populations, an exotic population in Texas and a native population in Uruguay. Our findings include field observations of both exotic and native populations and results of hatching and growth experiments conducted in a Southwestern University aquatic ecology lab. Observations of exotic *Pomacea* suggest that snails lay eggs on any hard surface, perhaps favoring *Colocasias esculenta*. In Uruguayan wetlands, *Pomacea* showed an oviposition preference for *Schoenoplectus californicus* near the shoreline. Native *Pomacea* laid fewer eggs per clutch than exotic populations. A much stronger relationship between clutch mass and egg number existed in the Uruguayan population, suggesting higher variability in clutch size in the exotic population. The vast majority of eggs from the native population hatched successfully, while hatching efficiency of clutches from Texas varied considerably. In the Texas population, we did not find any relationship between hatching date and hatchling size, instead clearly determining a threshold hatching size of 1.1 mm. Hatchlings emerge significantly larger in Uruguay, measuring 1.9 mm on average. In the exotic Texas population, despite similar initial sizes, hatchlings exhibited different growth patterns when presented with fish cues or grown in salt water. Overall, our work on early life stages of *Pomacea* may lend insight into what makes a successful invader.

15. **"You must be a very special person!": Special Education and Identity Work**
Kelsie Alstead, Department of Sociology and Anthropology, Southwestern University
Mentor: Sandi Nenga, Department of Sociology and Anthropology, Southwestern University

It is not uncommon to hear that special education teachers are special people and have a great amount of patience. This paper investigates how special education teachers and pre-service special education teachers react to these ideas and define a special education teacher identity. In-depth interviews were conducted with five pre-service special education students from a nationally recognized liberal arts college and five special education teachers from public elementary, middle school, and high school programs. Analysis reveals that pre-service special education teachers do not associate themselves with the special identity, while seasoned special education teachers do. This

paper reveals how special education teachers engage in identity work surrounding this contradiction between seasoned special education teachers and pre-service students.

16. **Size Matters: Perceptions of Nutrition Through Serving Size**
Emily Taylor and Mark Morrow, Department of Psychology, Southwestern University
Mentor: Richard Osbaldiston, Department of Psychology, Southwestern University

Americans today are confused when it comes to proper nutrition. They are told to watch what they eat, but they are not told how to interpret the nutrition facts on packaged foods. Information about calories, carbohydrates, proteins, and fats is only useful when it is contextualized by serving size. We hypothesize that people often overlook serving size, which leads to the perception of the nutrition facts in smaller serving sizes as healthier than larger ones of identical content. Our study tests this hypothesis by manipulating five nutrition labels into two different versions, a single serving and double serving, then asking participants to rate the healthiness of the product on a 5-point scale. After administering this survey to 90 students at a small liberal arts university, we found that participants rated smaller servings as healthier than larger ones. The purpose of this proposed study is to expand the sample to a more diverse demographic and to determine the primary contributing predictors of rating accuracy. Anticipated results would suggest that more education is needed in order to train people how to properly read nutrition labels and determine which subsections of the population are most in need of educational programs.

17. **“Some Guys Get All the Luck”: Individual Male Rats are Preferred Consistently During Mating Tests**
Jennifer Lovell, Elizabeth Joyce, and Jose Lopez, Department of Psychology, Southwestern University
Mentor: Fay Guarraci, Department of Psychology, Southwestern University

The present study was designed to determine if particular male rats are preferred consistently by female rats when the females are given the opportunity to mate with two males simultaneously. Seven pairs of male rats were tested once weekly for 7 weeks with different female rats each week. For all mating tests, the female rats spent more time with one of the two males in each pair. This male rat was defined as the preferred male. Across the seven tests, the female rats spent approximately 40% of the time with the preferred male compared to 15% of time with the non-preferred male. Interestingly, the different female rats preferred the same male rat 73.33% (+/- 2.66%) of the seven mating tests. Although no male rat was preferred 100% of the time across all mating tests, it is apparent that some males were consistently

students to question their own political views, which previously may have been only a reflection of their parents' views. Another result of this new-found freedom is the potential for experimentation with drugs, such as marijuana. Indeed, a report from the Substance Abuse and Mental Health Services Administration showed that 32% of full-time college students use marijuana. Because of the pervasiveness of marijuana use throughout contemporary culture, several studies have been conducted to analyze the connection between marijuana use and political behaviors. For example, Fisher, Steckler, Strantz, and Nabholz (1974) found that people who have used marijuana were in favor of legalization, and Wexler (1975) found that frequent marijuana users were described as more rebellious and hostile to rules and conventions. Similar studies have also revealed that people who consider themselves liberal tend to favor marijuana legalization (Baer, 1971) and to exhibit rebellious attitudes towards the government (Clouse, 1973). As such, the current study hypothesized that those who favor marijuana legalization would also oppose government intervention. To test this hypothesis, 112 college student volunteers (57 men, 54 women, 1 unreported) completed a survey of political attitudes and behaviors. As predicted, the results revealed that participants who favored marijuana legalization exhibited more rebellious attitudes towards the government, $r(110) = .45, p < .001$. Future research should investigate marijuana usage and levels of government intervention. Such future research is important in that it can help aid policy makers in making laws regarding marijuana usage. In the meantime, the government should be cognizant of the fact that the current study suggests that increased regulation of marijuana can potentially lead to increased rebelliousness towards the government.

71. **Student Impact on Classroom Medium of Exchange: Foundations of Business Teachers Assistant Observations**
Dan Slezak, Department of Economics and Business, Southwestern University
Mentors: Mary Grace Neville and Don Parks, Department of Economics and Business, Southwestern University

In the Spring Semester of 2005, Dr. Mary Grace Neville and Dr. Don Parks allowed me to act in an Observational/Teaching Assistant role in their Foundations of Business Classes. The goal of this participation was to observe the impact a student has on student learning when another student serves in a mentor-like capacity in the classroom. The Foundations of Business Program is a two semester section that I completed a year before starting this research study. As a student already finishing the program, we hoped current students would see me as a resource and a friend, to help students in their understanding of the material and of teacher expectations.

My participation in both classes varied to see if more or less influence had an impact. We used a video clip introduction in both classes and an

hydroponically raised under different light conditions and with different concentrations of nickel in their growth medium. We have determined the amount of nickel in these plants using neutron activation analysis. We compare our results with those obtained from atomic absorption spectroscopy and mass spectrometry. Our results suggest that there are two different mechanisms that plants use to accumulate metals.

69. **Reaction of α -acetytamoxifen with DNA: Examination of the Sequence Specificity and Consequence of Adduct Formation on DNA Polymerases**

Matt Halpert, Department Chemistry and Biochemistry, Southwestern University
Mentors: Lynn Guziec and Maha Zewail-Foote, Department of Chemistry and Biochemistry, Southwestern University and Martín Gonzalez, Department of Biology, Southwestern University

Tamoxifen, the non-steroidal anti-estrogen drug used to treat breast cancer, has been linked to increased risk of endometrial cancer. The increased risk is believed to be due to the formation of DNA-reactive metabolites, such as α -acetytamoxifen, which covalently modifies the N2 of guanine. A gel mobility shift assay was used to monitor the reaction of α -acetytamoxifen with DNA within different sequence contexts. Our results show that flanking sequences play a role in the overall reactivity of α -acetytamoxifen with DNA. Specifically, optimal binding of α -acetytamoxifen occurs when the target guanine is positioned five base pairs away from the center of an A-tract, which is composed of five consecutive adenines. Less covalent modification occurs when the center of the A-tract was located 3, 7, or 11 base pairs away. Either the sequence itself or the DNA secondary structure induced by the flanking sequence contributes to the level of modification. In addition, TAM-DNA lesions were evaluated for their ability to inhibit the progression of different polymerases. At longer incubation times, both Taq and Klenow polymerases were able to fully bypass the lesion. Although the polymerases did not extend the primers as quickly as the unmodified templates at shorter time periods, no pause sites were observed. The results suggest that these polymerases can efficiently bypass the lesion.

70. **'Toking Out' and Taking a Stand: Attitudes toward Marijuana Legalization and Rebelliousness toward the Government**

Laura Stevens and Shands Pemberton, Department of Psychology, Southwestern University
Mentor: Traci Giuliano, Department of Psychology, Southwestern University

College students are surrounded by people who hold values different from their own for the first time in their lives. This environment encourages

preferred by females significantly more than would be expected by chance ($p < .0001$). These results suggest that features of some males were more successful at attracting potential mating partners than others. Because the display of female paced mating behavior is significantly different between preferred and non-preferred male partners, the consistent preference of individual males may have adaptive significance for reproduction. In conclusion, the present results indicate that features of the male rat may influence whether different females consistently prefer particular male rats verses others.

18. **Heinous Confessions: The Use and Implications of Perpetrator Memory and the Holocaust**

Megan Stevenson, Department of History, Southwestern University
Mentor: Lisa Moses Leff, Department of History, Southwestern University

This paper attempts to remedy the virtual ignoring of perpetrator memory in Holocaust scholarship. In order to gain maximum use out of Nazi memory, a section of memory that should not be ignored coming from the Holocaust, full implications of its use must be considered. By default, perpetrator memory is criminal memory, which also becomes, the moment it is expressed, a form of confession. Confession is subsequently broken down into two categories of voluntary and involuntary confession, each with different considerations when used towards historical analysis. In addition, the public reaction to perpetrator memory is also unique, since to read about the atrocities from the perspective of the one who committed the crimes requires the reader to feel disgusted, much more than any other criminal memory. Part of reading or hearing the memories is to feel this bias, which must be fully considered in Holocaust research. Studying the use, implications, and reactions to perpetrator memory, in addition to the memory itself, is the only way with which it may be used effectively in Holocaust scholarship.

19. **What Lies Within: Constructing Beauty through Advertising in Women's Fashion Magazines**

Lydia Rudy, Department of Sociology and Anthropology, Southwestern University
Mentor: Edward Kain, Department of Sociology and Anthropology, Southwestern

Through a content analysis of three of the top women's magazines in the country, this paper explores the implications that magazine advertising has on the construction of beauty for female readers. Through a comparative analysis of current editions of these three magazines and a historical comparative analysis of two editions of *Vanity Fair* over the past 70 years, a quantitative and qualitative analysis was employed to obtain a deeper understanding of the advertisements and the messages they convey. A

quantitative analysis measured the multiple levels of objectification of women used in advertising to promote various products, images, and ideologies. A qualitative analysis was then used to interpret the manifest and latent content of the advertising found in the women's magazines. The paper concludes that the increasing portrayal of sexually-objectified women in these magazines has far-reaching implications for the female readers who are exposed to these advertisements on a monthly basis and who are actively pursuing their own definitions of beauty and sexuality.

20. Determining Whether Disturbance Caused by Humans Conducting NAAMP Call Surveys Declines Over Time

Robert Pena, Department of Biology, Southwestern University
Mentor: Ben Pierce, Department of Biology, Southwestern University

Recent studies demonstrate world-wide declines of many amphibian species. The North American Amphibian Monitoring Program (NAAMP) has been used to monitor the declines of amphibians through the use of road-side call surveys. Our study examines whether disturbance by humans conducting call surveys declines over time. Five and ten minute call surveys were conducted along randomly selected routes in central Texas using a standardized protocol. The number of species and number of frogs calling were compared among surveys conducted immediately after arriving at a site and after a 5-minute waiting period. The results of this research will provide important information for the design of future amphibian call surveys.

21. Small Interference RNA (siRNA)-mediated G1 Cell Cycle Arrest in NIH-OVCAR-3 Ovarian Cancer Cells

Kristen Meerbrey, Department of Biology, Southwestern University
Mentor: Maria Todd, Department of Biology, Southwestern University

Most human cancers have been found to have defects in key regulators of the cell cycle. The majority show loss of the retinoblastoma (RB) or p16 proteins and therefore, exhibit unregulated growth. However, we have previously shown that 82% of ovarian cancers coexpress RB and p16, which suggests that there are no G1/S transition defects in these cancers. Upon infection of the NIH-OVCAR-3 (RB+/p16+) ovarian cancer cell line with a recombinant adenovirus that over-expressed functional p16, we observed no difference in cell cycle distribution between uninfected and infected cells, indicating that the G1/S transition was indeed defective in these cells. Based on our previous work, we believe that the over-expression of cyclin E is responsible for the p16 insensitivity found in NIH-OVCAR-3. In the current study, we used western blot analysis to confirm the over-expression of the 52 kdal wildtype form of cyclin E in addition to multiple low molecular weight (LMW) forms of the

presentation will highlight the lessons and selected activities will be demonstrated.

67. ComingOut.com: The Relationship Between the Media and Gay, Lesbian, and Bisexual Identity

Sarah Gomillion, Department of Psychology, Southwestern University
Mentor: Traci Giuliano, Department of Psychology, Southwestern University

The increasing presence of gay, lesbian, and bisexual (GLB) individuals in the media has led to questions concerning the media's impact on GLB individuals. Previous research has examined the relationship between the media and GLB subgroups such as lesbians (Dobinson & Young, 2000). Other studies have explored heterosexual participants' reactions to GLB media content (Levina, Waldo, & Fitzgerald, 2000; Mazur & Emmers-Sommer, 2002). However, no study has systematically explored the relationship between GLB identity and the media. To examine this relationship, 128 GLB participants at a gay pride festival in Austin (64 women, 53 men, 1 other, and 10 unknown) completed a questionnaire on identity, life satisfaction, community participation, and the media. The results revealed that life satisfaction was positively related to the degree to which participants were "out," and participation in the GLB community was related to how positively participants viewed the media, to being "out," and to life satisfaction. In addition, participants listed Ellen DeGeneres, Will and Grace, and Queer as Folk as influential to their identity and rated the Internet as the media outlet most influential to their coming out process. Overall, participants listed more positive than negative portrayals of GLB characters, and they reported that they would like to see more realistic depictions of GLB characters. Finally, participants reported that the media influenced their identity by providing role models, a source of pride, and by increasing GLB visibility. Future research is needed to deepen our understanding of the role of media in GLB identity. For example, experiments could be conducted in which aspects of GLB participants' identity could be examined after exposure to different media portrayals of GLB characters. In sum, the study provided directions for improving GLB media content in such a way that could reduce negative depictions and increase depictions affirming to GLB identity.

68. Plants that Hyperaccumulate Metals

Landon Sommer, Department of Physics, Southwestern University
Mentor: Steven Alexander, Department of Physics, Southwestern University

Hyperaccumulators are plants that are able to intake relatively large amounts of trace metals. Two types of plants (*Arabidopsis* and *B. Juncea*) were

patterns and to examine its ephemeral nature; this in itself is a contrast to Western culture's view of what art is and what art is created for. This project involved a multidisciplinary approach and was focused on the creative process as well as cultural issues. It is my hope that this project will stimulate conversations about topics such as the disruption and possible exploitation of the traditional art in India and the gender roles and social systems that influence its creation.

65. Determination of the Lon Recognition Site on the UmuC Protein in *Escherichia coli*

Elizabeth Williams, Department of Biology, Southwestern University
Mentor: Martin Gonzalez, Department of Biology, Southwestern University

DNA damage producing single-stranded DNA cannot be traversed by DNA polymerase III. In order to continue replication the cell must use DNA polymerase V, an error-prone polymerase that can undergo trans-lesion synthesis. Since DNA pol V is error-prone it must be regulated to avoid excessive mutations. One form of regulation is protein degradation and one of the components of DNA pol V, UmuC, is degraded readily by the Lon protease.

To better understand the Lon-mediated degradation of UmuC, we compared UmuC to a similar error-prone polymerase DinB. DinB and UmuC share significant amino acid sequence similarity and are both members of the Y superfamily of DNA polymerases. Intriguingly, DinB is considerably more stable in vivo than UmuC and also lacks a terminal carboxyl "tail" of amino acids found in UmuC, suggesting that this "tail" might contain the recognition site for Lon.

We proceeded to create several plasmids which express increasing carboxyl-terminal deletions of the UmuC proteins. Our data strongly suggests that the carboxyl-terminus of the UmuC protein plays a key role in the Lon-mediated degradation of UmuC.

66. Hands-on, Minds-on Science Lessons Presented at "Conference for the Advancement of Science Teaching" in Houston

Bridgette Arnold, Cassie Ashby, Rebecca Batlan, Brittany Gernand, Hilary Schroeder, Jennifer Judson, and Alissa Muir, Department of Education, Southwestern University
Mentor: Michael Kamen, Department of Education, Southwestern University

Students in General Science developed hands-on, minds-on science lessons and presented them at the Texas Conference for the Advancement of Science Teaching (CAST). The lessons, which applied research-based pedagogy on science teaching and learning, were designed for elementary and middle school science students. The activities were presented to current science teachers from around the state. These lessons were all published in the Texas Council for Elementary Science's annual publication "Hands Across Texas." Our

protein. In addition, we determined that the cyclin E protein in NIH-OVCAR-3 was degraded at the same rate as in a normal breast epithelial cell line, HBL-100. Finally, we have transiently transfected small interference RNA (siRNA) specific for cyclin E into NIH-OVCAR-3 cells in order to suppress its expression. Using this technique, we were able to inhibit wildtype expression by approximately 70% and completely inhibit LMW form expression. In addition to the down-regulation of cyclin E expression, the cells underwent a marked shift in RB protein expression to the active, hypophosphorylated state. This contrasts with cells transfected with the non-targeting siRNA that showed no change in the phosphorylation status of the RB protein, retaining the expression of both the hyperphosphorylated and hypophosphorylated states. These data provide strong evidence that cyclin E overexpression plays a major role in deregulation of the G1/S transition and that the suppression of cyclin E protein is able to restore the G1/S transition in these ovarian cancer cells.

22. Money and Alcohol Abuse: An In Depth Analysis of Income Level's Effect on Alcohol Abuse in Wet and Dry Counties

Brian Kasper, Department of Sociology and Anthropology, Southwestern University
Mentor: Edward Kain, Department of Sociology and Anthropology, Southwestern University

Previous literature has looked at the effect of increasing taxes on alcohol, as well as increasing the legal drinking age on reducing alcohol abuse. Recent studies, however, have begun to look at the effect of restricting alcohol sales within county borders. This project takes another look at this mode of decreasing alcohol abuse by looking at the effect of the income level on alcohol abuse and then comparing counties that are wet—do not prohibit alcohol sales, and dry—do prohibit alcohol sales. Through a quantitative analysis, looking at statistics obtained from the Texas Department of Health, as well as the Texas Almanac, the findings focus on the effect of average income levels for all the counties in Texas on the number of alcohol related accidents per 1,000 people. Because this is a complicated relationship the analysis goes a step further, looking at more variables. I will look at the effect of mean income levels on DWIs per 1,000 people. I plan to control for the amount of police personnel in the area per 1,000 people as well as the unemployment level in the county. I hypothesize that as income level decreases the amount of alcohol related accidents and DWIs will increase for both wet and dry counties, but to a greater degree in wet counties.

23. Tension Between Ideology and Pragmatism in the Foreign Policy of Revolutionary States

Elizabeth Hoffman, Department of Political Science, Southwestern University
Mentor: Bob Snyder, Department of Political Science, Southwestern University

This essay hypothesizes that revolutionary states make pragmatic foreign policy decisions, despite the fact that extremely ideological rhetoric is used to explain and defend these positions. A case study of Iran will be used as a tool to highlight the causal mechanisms of the theory, which can then be generalized to other similar situations. The examination of four specific events in the post-revolutionary era will illustrate this tendency in revolutionary states.

24. Possible Reasons for Donating to the Mothers' Milk Bank

Candace Loessin and Jessica Harper, Department of Psychology, Southwestern University

Mentor: Richard Osbaldiston, Department of Psychology, Southwestern University

The Mothers' Milk Bank is a non-profit organization that uses donations of human breast milk for the welfare of premature babies. The present study was conducted by a telephone survey. The study analyzed the differences between high-volume and low-volume donors. Possible reasons for donating were evaluated for the purposes of comparing high-volume and low-volume donors and improving recruiting and outreach efforts.

25. The Library of Lucullus: Symbol of Late Republican Social and Literary Trends

Catherine Urban, Classics Program, Southwestern University

Mentor: Halford Haskell, Classics Program, Southwestern University

For my presentation, I will point to the formation and literary reputation of the library of the general L. Licinius Lucullus as being one of the most notable examples of new literary and social trends emerging in late republican Rome. The library of Lucullus, I contend, gives evidence of a certain sense of social stress and a desire for reclusion when a Roman lost his auctoritas.

The lecture will discuss the importance of the role of auctoritas, the ability of a Roman man to influence state affairs by virtue of the power of his past deeds and prestige. Whenever auctoritas waned greatly, a Roman aristocrat's career often suffered. One way that he could gracefully accept this turn of events was to go into retirement and pursue intellectual endeavors; the best way to achieve this was to form one's own library. The lecture will then detail how Lucullus's library gave him the ability to enjoy an added sense of self-sufficiency and prestige, for it created a place in which he could spend his private life in contemplation and submerge himself in philosophy, a trend followed by many other notable Romans. The lecture will not simply dismiss Lucullus's and others' actions as a desire for pure escapism, for a good library often took a great deal of persistence, luck, and the participation of many to build, maintain, and enjoy. Many events that one would consider social affairs today took place at Lucullus's villa, and the men who availed themselves of the

Mentor: Don Parks, Department of Economics and Business, Southwestern University

My project focuses on the need for a homeless shelter or transitional housing program in Williamson County, specifically Georgetown. As part of my Business Capstone in the fall of 2005, our class worked in conjunction with The Caring Place to assess the possibility that this local community organization could put together a transitional housing program that would serve the surrounding area and its homeless population. As an extension of that project, I worked with Dr. Don Parks and wrote a formal case write-up on The Caring Place and the homeless situation in Williamson County. In addition, I wrote up the analysis that goes along with the case to show the process that our Capstone class followed in our attempt to offer the best recommendations to the directors of The Caring Place regarding what steps they would have to follow in order to implement a successful transitional housing program. This analysis includes a situational analysis, various operational and financial alternatives, and finally our recommendations as to what The Caring Place should do next. Eventually, I hope to get the case published so that other students can use it as a real-life example of an attempt to solve a real-life problem. Also, having the case published would serve as an exclamation point on my business major that has been the focus of my academic career at Southwestern.

64. Mandana: Exploration and Transformation of an Indian Art Tradition

Jennifer Lovell, Department of Art, Southwestern University

Mentor: Patrick Veerkamp, Department of Art, Southwestern University

Mandana is a tribal art tradition that can be found in the Meena inhabited Sawai Modhopur region of Rajasthan, India. It consists of designs and motifs painted on the floors and walls of the inhabitant's mud home for religious purposes. The present project was inspired by an independent study I conducted on mandana paintings during my semester abroad in India in the fall of 2004. I lived in a village named Kosali to learn the lifestyle and techniques employed by the Meena female artisans during the holy season of Diwali. In an attempt to assimilate my experiences, I have produced a series of these floor paintings on a site next to the outdoor recreation/fire pit, behind the physical plant, on the Southwestern University campus.

For the project, I cut into the earth and prepared a ground made of mud to serve as my painting surface. This surface was then covered with a mixture of cow dung, sand, and mud before I began painting. I employed the traditional method of painting with my fingers with a small piece of cloth in my palm. Throughout the process I intentionally manipulated and transformed the art into a meaningful exploration of my own experiences in the village. My goal was not to create "masterpieces" but to experience the beauty of simplistic

sexuality, and the construction of families become very familiar. These standards are particularly apparent in the study of sperm donation clinics and cryobanks, where an image of fertility in relation to masculinity, sexuality, and ideal gender and family norms take on very important definitions. Looking specifically at the language and images presented by three of the most prominent sperm donation clinics in the United States (California Cryobank, Fairfax Cryobank, and Xytex), very clear pictures of what the ideal male is, what an appropriate family consists of, who should be reproducing, and what characteristics one should look for when choosing a donor, become apparent.

These corporations create distinct pictures of how fertility should be managed and viewed through their websites, brochures, and other informational tools.

This research hopes to bring forth these ideals and deconstruct them to better understand how our culture defines gender, sexuality, and the family construct, and by what means these clinics act as gatekeepers in terms of the increasing popularity of reproductive technology.

62. From Noses to Computers: Reshaping the Perfume Business

Christy Bell, Department of Chemistry and Biochemistry, Southwestern University and Ben Lake, Department of Physics, Southwestern University
Mentor: Steven Alexander, Department of Physics, Southwestern University

A perfumer is an artist who attempts to describe social motion and attitude through our sense of smell. Creating an original perfume is a time consuming process and can take an experienced individual months or years. The typical perfumer works in his lab and uses his knowledge of various oils and exotic scents to create, through trial and error, a blend of several dozen essences that will inspire a mood or feeling. The purpose of this proposal is to demonstrate that recently developed software in the field of artificial intelligence can reshape the way that fragrances are generated. To test this idea, I selected a number of oils that have a wide range of scents. The first step was to generate a random combination of oils from this set. After 10 combinations were prepared, the "sacred" nose of the fragrance business stepped in. I sniffed each container and evaluated their aromas. A genetic algorithm then selectively mutated the best choices and generated a new set of 10 combinations. After multiple generations the result was a distinct, pleasing perfume. This project is obviously a blend of both art and science, and it let me explore the art of making a perfume in a way that no one has ever done before. The potential for this project is that anyone could use this same procedure to easily create his or her own individual perfume. All they would need would be their nose and the desire to produce a new and vibrant scent.

63. The Caring Place: Making a House a Home

Ty Ragland, Department of Economics and Business, Southwestern University

library often incorporated their studies into literary output. When cut off from the most prestigious public venues, Lucullus and other learned men could essentially work within the intellectual spheres available to them and live luxuriously while doing so, regaining some sense of their lost auctoritas.

26. Bitters and Cheers: An Ethnography of Pub Culture at The Churchill Arms
Andrew Morrison, Department of Sociology and Anthropology, Southwestern University
Mentor: Maria Lowe, Department of Sociology and Anthropology, Southwestern University

Using participant observation and a formal interview of the patrons and bartenders, this research develops an ethnography of a small neighborhood pub in the West London area of Kensington with a focus on the way masculinity is constructed and performed within the pub and how this creates a gendered space. A careful evaluation of field notes and observations revealed that the pub has its own set of norms and values that govern the behavior of the bartenders and patrons, creating what amounts to a "pub culture." Masculinity in the pub is constructed through gendered language and norms and its performance reflects the "traditional" atmosphere found at the Churchill Arms. The combination of gendered behavioral expectations with the "traditional" atmosphere of the Churchill Arms makes the pub a gendered, masculine space.

27. Optimal Conditions for the Houston Toad

Ashley Swannack, Department of Mathematics and Computer Science, Southwestern University
Mentors: Todd M. Swannack, Department of Wildlife and Fisheries Sciences, Texas A & M University, and Therese Shelton, Department of Mathematics and Computer Science, Southwestern University

The Houston Toad is an endangered Texas species. For my capstone project in Mathematics, I created a mathematical model to predict under which weather conditions the Houston Toad is most active. This model could help protect toads in the future. The model will be analyzed to see how accurately it is able to predict toad appearance and the limitations of the model will be explored.

28. High-tech Cave Hunting

Ben Lake, Department of Physics, Southwestern University
Mentor: Steven Alexander, Department of Physics, Southwestern University

There are many methods currently practiced in measuring the composition of various subsurface materials. They all vary significantly with the procedure and methods but the basic principles are the same. In geophysical

resistivity imaging, an electric current is sent through the ground and measured at another point. The resistance of the ground through the current's path (from Ohm's Law) can then be calculated. Knowing the resistance of the earth in a particular area and how it varies is crucial to many projects.

In this project, I propose to study the earth using a geophysical resistivity imaging device called the SuperSting R8/IP, developed by Advanced Geosciences Inc, Austin, TX. AGI are at the forefront of the resistivity imaging technology and have graciously offered the use of one of their expensive devices for my experiments. The SuperSting is typically used to measure the density of land (and underwater earth) in civil engineering projects to determine weak areas in the earth and safely route roads, tunnels, bridges, etc. The implication that I wish to explore further is that of mapping known sinkholes and possibly finding more, unknown sinkholes. Sinkholes form when a void is created in soft earth (typically limestone), usually from water erosion. The resulting weak area can collapse, with possible danger to life and property. I propose to map known sinkholes on a ranch near Blanco, TX and to safely mark off the extent of the sinkholes.

This experience with geophysical resistivity imaging will serve several purposes: it will reinforce the practicality and ease-of-use of the SuperSting system and will mark off dangerous areas to prevent possible injury/death to property and life. The primary reason, however, will be to strengthen and emphasize the real-world applications of the concepts taught in the Electromagnetism classes at Southwestern.

29. Understanding through Interpreting: The Importance of the Reader to an Understanding of Friedrich Nietzsche's "Thus Spake Zarathustra"
Jacob Schrum, Department of Modern Languages and Literatures and Department of Religion and Philosophy, Southwestern University
Mentors: Erika Berroth and Joseph O'Neil, Department of Modern Languages and Literatures, Southwestern University and Philip Hopkins, Department of Religion and Philosophy, Southwestern University

Friedrich Nietzsche's book "Thus Spake Zarathustra" stands alone as perhaps the only serious philosophical work told in the third person about a fictitious character. In this book, Nietzsche reaches the peak of poetic and symbolic expression, and it is perhaps because of this that it is one of the most puzzling and easily misunderstood of his works. This research project analyzes Nietzsche's Zarathustra, and in doing so develops a means of understanding all of the works written by this 19th century poet philosopher. Of utmost importance is the act of interpretation, a creative act that, when done in an active fashion with careful attention to the text, is intimately bound with understanding. This form of creative interpreting is applied to the two key ideas of Zarathustra, the Overman and the Eternal Recurrence, which are often

among political parties, different religions, and even denominations within the same religion. And it seems that these divisions arise from the many different memories associated and constructed around this ancient city. Within available literature and scholarship surrounding Jerusalem there is much to be said about historical and religious claims of the city, the archeology, political commentary, and ritual and liturgical glorification of Jerusalem as a holy city, however little has been said concerning the role the city plays as a site of memory, or lieux d'memoire, as Pierre Nora suggests. For the Judeo-Christian religions, Jerusalem serves as a site of collective religious memory, or, according to Maurice Halbwachs, a construction of the past that "confines and binds our most intimate remembrances to each other." This paper will serve to discuss and analyze the place of Jerusalem in the evolution of European, and subsequently American, Jewish collective memory surrounding the city of Jerusalem between the French Revolution and the establishment of the State of Israel in 1948. The paper poses and answers the following question: how does a reforming religious group retain their identity and affiliation with that religion while utilizing collective religious memory to further the reformation? I would suggest that although the construction and utilization of the collective memory takes on different forms, in the case of Jewish religious memory of Jerusalem, in essence, the memory consists of symbolizing and idealizing the city, as a glorification of the past, a celebration of the present, and a hope for the future.

60. Interaction of Ruthenium Complexes of Schiff Base Ligands with DNA
Bhavik Kumar, Department of Chemistry and Biochemistry, Southwestern University
Mentors: Maha Zewail-Foote and Gulnar Rawji, Department of Chemistry and Biochemistry, Southwestern University

Ru(II) and Ru(III) complexes of Schiff base ligand derived from condensation of 1,2-phenylenediamine with salycaldehyde have been prepared and characterized by NMR, UV-Visible, and IR spectroscopies. The interaction of these complexes with DNA has been investigated using absorbance titrations and gel electrophoresis. Bathochromic shifts as well as hyperchromism is observed in the UV-Vis spectra indicating interaction between the metal complex and DNA. Furthermore, these studies also reveal that the complexes are effective in cleaving double stranded DNA. In addition to these data, the results of investigations of the mechanism of interaction leading to the cleavage of DNA will be presented.

61. Appropriate Families: Sperm Donation Clinics as Gatekeepers
Brodie Reynolds, Department of Communication Studies, Southwestern University
Mentor: Jay Baglia, Department of Communication Studies, Southwestern University

In the study of fertility, many cultural scripts involving gender,

difference in any of the measured behaviors between the two conspecific treatments, this may be due to the males only recognizing, and responding aggressively to the live conspecific rather than the interaction. Video playback is important because it allows for one to take another approach, and may allow us to not only test old questions in a new way, but also to manipulate various signal components while using a more realistic technique than dummies.

58. Effect of Anthrapyrazoles AP-10 and AP-11 on Human Mammary (MCF-7) and Endometrial (HEC 1-A) Adenocarcinoma Cells in Culture
Carolina Boet, Department of Biology, Southwestern University
Mentor: Maria E. Cuevas, Department of Biology, Southwestern University

Anthrapyrazoles (AP) are potent cytotoxic agents that intercalate with DNA, and are thus considered to be effective anticancer drugs. Derived from anthracyclines, these compounds were synthesized in an attempt to lower the high cardiotoxic side effects caused by their precursor. The objective of this study was to determine the cytotoxic effect of AP-10 and AP-11 on human HEC 1A (endometrial) and MCF-7 (breast) adenocarcinoma cell lines. Cell cultures were treated with different concentrations of AP-10 and AP-11 (0.5-5 μ M) for one hour. Cells were allowed to recover for 48 hours in fresh media in the absence of compound, and cell viability was determined by trypan blue dye exclusion assays. The IC₅₀ of AP-10 on HEC 1A and MCF-7 was determined to be 75nM and 0.35 μ M, respectively, whereas the IC₅₀ of AP-11 on MCF-7 was found to be 0.42 μ M. The IC₅₀ on HEC 1A was not determined. We evaluated whether apoptosis was induced in cell cultures exposed to the predetermined IC₅₀ of each compound. Western blot analysis showed Caspase 3 and 8 remained uncleaved in both cell lines, which suggested that activation of apoptosis did not occur in these cells. Using a microplate reader, an MTS assay was performed in order to supplement the dye exclusion data. The IC₅₀ of AP-10 on HEC 1A and MCF-7 was determined to be 4mM and 1.5 μ M respectively, whereas the IC₅₀ of AP-11 on HEC 1A and MCF-7 was found to be 7.65 μ M and 2.5 μ M respectively. Cell lines were treated with new IC₅₀ values, as previously used cell treatment concentrations may have been too low to induce apoptosis. Analysis of DNA laddering, a hallmark of apoptosis, was consequently performed. Through gel electrophoresis, no DNA fragmentation was observed suggesting that cell death did not occur through apoptosis but through an alternate pathway.

59. Sing Unto God a New Song: Rebuilding Jewish Memory 1789-1948
Rachel Kinkade, Department of History, Southwestern University
Mentor: Lisa Moses Leff, Department of History, Southwestern University

Jerusalem, to many, brings up connotations of division and conflict:

misunderstood due to Nazi abuse of Nietzsche's works during World War II. A proper understanding of these two concepts requires an understanding of the rest of Nietzsche's works, yet at the same time clarifies much of what is said in these works. The resulting interpretation of these concepts creates the ideal of an individual that can accept the past, strive for the future, and actively live in the present in a manner as yet unachieved by humankind – an ideal towards which those who feel predestined are free to strive.

30. Dudes' Attitudes: Examining the Influence of Choice and Increased Selection of Reading Materials on Young Males' Attitudes About Reading
Stephanie Smith, Department of Education, Southwestern University
Mentor: Sharon Johnson, Department of Education, Southwestern University

The purpose of this study was to examine the effects of increased choice and selection of reading materials on male students' attitudes toward reading. Because of the growing achievement gap between girls and boys in various standardized assessments of reading, the issue of gender differences in literacy has come to the forefront of educational discussions. This study examined the effects of increased selection of books, increased choice in reading activities, and the use of innovative teaching strategies on the attitudes of students in a third grade class. To increase selection, a special collection of books were chosen based on their fit in a category shown to appeal to young male readers; some of these categories included graphic novels, fantasy novels, humorous/joke books, and non-fiction texts. These books were brought into the classroom and introduced as a special collection that could be used by the students in addition to the existing classroom library. Additionally, innovative teaching strategies, such as read aloud, book club, and reader's theatre were implemented with the class and small groups. In various contexts within these activities, students were given choice of their reading materials. Students in the experimental class and in a control group (a class with a similar demographic in the context of reading levels and achievement) were given the Elementary Reading Attitude Survey in September and in the following March. Results will be presented at the Southwestern University Undergraduate Research and Creative Works Symposium.

31. Barreras del Lenguaje: Children's Negotiation of Adult-Created Exclusionary Structures
Ali Hendley, Department of Sociology and Anthropology, Southwestern University
Mentors: Sandi Nenga and Melissa Johnson, Department of Sociology and Anthropology, Southwestern University

This presentation explores the effects of language differences on dynamics between youth athletes. 15 hours of participant observation were

conducted by the researcher with a youth soccer team. This data was supplemented by 5 interviews with the coach and players' parents. With a Spanish and English-speaking bilingual coach, one fully bilingual player and another partly bilingual player, two Spanish-only speaking players, and four English-only speaking players, there were opportunities for many different types of interactions. This presentation specifically focuses on how language differences served as a catalyst for the creation of exclusionary structures by the adults surrounding the team. However, these structures did not determine the team's culture; rather, there was both accommodation and resistance on the part of the players to those structures of exclusion that the adults had introduced.

32. Autism and Executive Function: The Effects of Motivational/Attentional Accommodations

Christine E. Chalmers, Samantha A. Borrego, and Candace A. Tribble, Department of Psychology, Southwestern University
Jacqueline Muir-Broadus, Department of Psychology, Southwestern University

Numerous studies show that children with autism experience deficits in executive functions (EF) (e.g., planning and working memory, Ozonoff et al., 2005). However, the extent to which these studies demonstrate deficits of performance or of competence is unclear. This is an important issue because children with autism typically have attention deficits (Tsatsanis, 2005) and most EF tasks require controlled attention (Kane et al., 2001), yet researchers rarely address motivational/attentional issues in their methodologies. One notable exception assessed the effects of motivational/attentional accommodations on the intelligence test performance of six children with autism, finding that they produced significant increases in IQ scores (Koegel et al., 1996).

Similar to Koegel et al, the present study examined the effects of motivational/attentional accommodations on executive functioning (i.e., Knock-tap, Statue, Tower, and Visual Attention tasks from the NEPSY). Four boys (7, 7, 9, & 12 years) diagnosed with autism completed the tasks under two experimental conditions. The standard testing condition (SC) followed standard procedures and the motivational/attentional condition (MAC) incorporated individually tailored accommodations (such as primary reinforcements). Accommodations were based on a parent questionnaire and behavioral observations made as the children completed tasks similar to the ones used during testing. Condition order was counterbalanced within and between participants to control for practice effects (i.e., for half the tasks and for half the participants, the MAC preceded SC).

As predicted, motivational accommodations improved task performance. Of the 16 scores (4 tasks x 4 participants), 13 scores (81%) were better in the MAC than the SC. Three participants did better in the MAC than the SC for

ABSTRACTS: POSTER & CREATIVE WORKS

56. Internal and External Influence on the Sexual Risk-Taking Behaviors of College Students

Mary Beth Pinnell and Molly Peterson, Department of Psychology, Southwestern University
Bryan Neighbors, Department of Psychology, Southwestern University

The majority of college students are sexually active and many frequently engage in high risk sexual behaviors (e.g., Flannery & Ellingson, 2003). Certain internal and external factors may influence this behavior. For example, research has shown that the frequency of risky sexual behavior is correlated with one's sexual attitudes, as well as peer influence promoting sex. Because most previous research has focused on either internal or external factors, the objective of the present study was to explore the possibility that each are independently related to sexual risk-taking. It was predicted that sexual attitudes would correlate with sexual risk, such that attitudes viewing sex as primarily physical and less relationship oriented, as well as having more permissive and less responsible attitudes toward sex would be associated with greater sexual risk. Greater peer influence was also predicted to be positively correlated with sexual risk. Results suggested that both internal (sexual attitudes) and external (peer influence) factors were independently associated with the sexual risk-taking behavior of college students.

57. An Evaluation of the Video Playback Technique in Siamese Fighting Fish (*Betta splendens*)

Delia Shelton, Animal Behavior Program, Southwestern University
Mentors: Teresa Dzieweczynski and William Rowland, Department of Biology, Indiana University, Lisa Meffert, Department of Biology, Rice University, and Richard Tapia, Department of Computational and Applied Mathematics, Rice University

Video playback allows for the study of visual cues while controlling for signaler behavior. We used this technique to determine if showing a conspecific on a video monitor would elicit behavior in *Betta splendens* as video playback has not been used in this species before. Males with bubble nests were tested under three treatments: male interacting with a dummy female (courtship), male interacting with a dummy male (aggression), and empty tank (control), and their behavior was assessed. We measured the time spent by the video the video monitor, time spent by the nest, also the following behaviors directed towards the video monitor: tail beats, gill flaring and bites. Males did recognize the video fish as a conspecific as demonstrated by an increase in aggressive behavior during the conspecific versus control treatments. We found no

of a nation has great bearing on its level of healthcare.

55. Stress Proteins in Crayfish Ventral Nerve Cords Exposed to High Temperature, Severance, Ethanol, and UV Exposure

Angela Nordin, Department of Biology, Southwestern University
Rebecca Sheller, Department of Biology, Southwestern University

Stress proteins were identified in protein samples from crayfish ventral nerve cords after *in vivo* treatments of high temperature or ethanol, or an *in vitro* ultraviolet light exposure of the ventral nerve cord. Individual crayfish, acclimated at 22°C were subjected to high temperatures in a water bath, at 37°C (n=3) and at 40°C (n=2). The crayfish survived the 37°C treatment, but not the 40°C treatment, indicating that 37°C is near the upper limit for crayfish survival. Crayfish (n=2) were also subjected to 7% ethanol and survived the treatment. After the temperature or ethanol stress exposures, ventral nerve cords of the crayfish were dissected and analyzed. In the ultraviolet light exposure, the ventral nerve cord was first dissected and then subjected to a 30 minute, 900,000 Joule/cm² exposure at an ultraviolet light wavelength of 254nm. Dissected ventral nerve cords were separated into ganglia (cell body enriched tissue) and connectives (axon enriched tissue), prior to homogenization. Bradford Assays were performed to establish the amount of total protein in each sample and aliquots were run on 15% SDS PAGE gels. Commassie Blue stained proteins from control and treated ventral nerve cords appeared to be quite similar. Western Transfers were performed and the nitrocellulose blots were probed with mammalian heat shock and ubiquitin antibodies. The blots revealed inducible HSP 70 and constitutive HSC 70 proteins in control and stressed tissues. Ubiquitin was unreliably detected in some samples. The relatively high levels of stress protein in the crayfish nervous tissue may contribute to tissue survival after exposure to various harsh environmental insults.

three of four tasks and one participant did better in the MAC than the SC for all tasks. The absence of a clear pattern of score differences across the counterbalanced orders suggest that these results are not simply practice effects.

33. Writing Pain, Writing Pleasure: Considerations for Composition Teachers and Students

Rebecca Brannick, Department of English, Southwestern University
Mentor: Elisabeth Piedmont-Marton, Department of English, Southwestern University

The interactive relationship between teacher and student affect make the writing process unnecessarily painful and frustrating for students of all educational levels. In order to make the pain of writing more manageable, schools and universities become places that encourage the cultivation of masochism in student writers. Such masochism is often manifested in a profound fear and avoidance of revision and students' accompanying perfectionist tendencies to create a product that will not need to be subject to the scary work of revision; the only pleasure many students feel in connection to writing is the state of being finished with the writing. In this way, students fetishize the final product out of unreflective obedience to what the teacher wants. Because of the powerful influence that composition teachers' pedagogies have on the motivation and actual ability of writing students, it is first the teachers, not the students, who need to change their approaches if the psychological dynamics of composition are to improve. One practical guideline offered here for the teacher who decides to build a more motivating pedagogy is for the teacher to focus more attention on what the student has written than on what the teacher wants or expects from the student. When the teacher focuses more on the content of the paper, rather than immediately reaching for the red pen to mark errors, and when she acts more like a facilitator than an ultimate authority, the student will be better served both emotionally and cognitively. Teaching students that writing does not necessarily have to be painful—that, in fact, it can be therapeutic and joyous—will encourage them to produce better individual pieces of writing, but more importantly, will motivate them to become better life-long writers.

34. Religion, Politics, and Why No One Watches the News: How Religiosity and Extremity of Political Views Affects Confidence in the Media

Jacqueline Holden, Department of Sociology and Anthropology, Southwestern University
Mentor: Edward Kain, Department of Sociology and Anthropology, Southwestern University

This paper looks at how religiosity and extremity of political views affect confidence in the media, specifically the press and television. My hypothesis is

that higher religiosity and more extreme political views will have a negative effect on confidence in the media, so as religiosity and extremity goes up, confidence in the media goes down. Then I examine how controlling for age and education affects the relationship that religiosity and extremity of political views have with confidence in the media. After controlling for age and education the results should be replicated. The conclusions in this paper are drawn from analyzing data from the NORC GSS. The NORC GSS uses a multi-stage probability sample proportionate to size, and in the year 1998, the year from which I will be getting my data, 2832 people were given the survey. The variable religiosity was measured using an index based on questions asked on the GSS concerning religious behavior. Correlation values indicate that extremity of political views and religiosity did have a negative relationship with confidence in the media, and the results were replicated when controlling for age and education.

35. Anarchy for Kids

Josh Franco, Department of Art and Department of Religion and Philosophy, Southwestern University

Mentor: Alejandro de Acosta, Department of Religion and Philosophy, Southwestern University

'Anarchy,' in this case, is the title of a book for children. I have adapted Anarchist principles as set out by David Graeber in 'Fragments of an Anarchist Anthropology' into a work that can transmit these principles to those individuals who have had less time to commandeer the common written/spoken languages, a quality we unfairly call "naivete," those we call "children." The story reads through simple diagrams and a story with a seven-year-old as the main character. I have done this in the belief that there is some promise in Graeber's work, promise of a better future whose possibilities have already existed on the planet, and that children are the most receptive to such optimisms, and the most willing to see them realized.

36. Inhibiting Telomerase: An Insight into Anticancer Drug Development

Yasmin Mehta, Department of Chemistry and Biochemistry, Southwestern University

Mentor: Kerry Bruns, Department of Chemistry and Biochemistry, Southwestern University

Telomeres are single-stranded DNA structures located at the termini of eukaryotic chromosomes. In healthy somatic cells, these telomeres are shortened every time the cell divides. Telomeric shortening leads to aging of the cell and eventually to cell death. Normal differentiated cells do not express telomerase. The enzyme telomerase is expressed in tumor cells and in cultured cells derived from tumors. This enzymatic activity serves to lengthen the ends

events and patterns that complicate such a claim. However, the perception of a common bond between London citizens in particular using this method of transportation serves as a symbol in uniting and securing an oftentimes fragmented, diverse people residing in a concentrated urbanized space.

53. Developing a Model for MucAB Mutagenesis: Examination of Posttranslational Pathways for MucA/MucA' Regulation in *Escherichia coli*

Ian Bothwell, Department of Biology, Southwestern University

Mentors: Teri Bean and Martín Gonzalez, Department of Biology, Southwestern University

The UmuDC proteins, responsible for the process of translesion synthesis in *Escherichia coli*, are the product of a complex series of transcriptional and posttranslational regulatory processes that are initiated by the presence of highly damaged DNA. The ways in which the UmuDC proteins are regulated have been extensively studied and modeled in *E. coli*; however, it has not been shown that proteins sharing UmuDC homology adhere to the same model of regulation. Our study involves understanding the regulation of one set of proteins homologous to UmuDC: the MucAB proteins. The regulatory process of these proteins is of special interest for two major reasons: (1) the DNA polymerase V complex formed by these proteins is more mutagenic than that formed by the UmuDC proteins, and (2) the mucAB operon is found naturally on a plasmid, giving it a greater capacity to traverse between species.

Intrigued by these characteristics, we have performed both in vivo and in vitro experiments to more closely examine how these proteins interact and are degraded. Based on preliminary results, we have shown striking differences between the posttranslational pathways of UmuD/D' and MucA/A' regulation.

54. Income, Income Inequalities, and Education and their effect on Healthcare: a Cross-National Approach

Phillip Cantu, Department of Sociology and Anthropology, Southwestern University

Mentor: Edward Kain, Department of Sociology and Anthropology, Southwestern University

In 2000, the UN Millennium Summit adopted the Millennium Development Goals. Included in these goals were the need to increase access to primary education, decrease poverty, and increase healthcare worldwide. In order to more fully understand the reaching concepts of these goals it is important to look at the relationship between income, education, and health. Using data from the 2005 World Development indicators and the WHO Core Health Indicators, this article looks at the relationship between, Per Capita GNI, GINI coefficients, Primary completion rate, and healthy life expectancy at birth for the 192 WHO member states. Findings indicate that the educational system

Program, Southwestern University

Mentors: Melissa Johnson, Department of Sociology and Anthropology, Southwestern University and Benjamin Maldonado, Instituto Nacional de Antropología e Historia

“El museo comunitario es parte de la vida de un pueblo, donde dejamos plasmado nuestro pasado y así dejar huella a las futuras generaciones como patrimonio. Es para conocer lo que fuimos y comprender lo que somos.” (The community museum is part of life of the town where we leave footprints to the future generations like heritage. It's to know what we were and understand what we are.)

These words were taken from a plaque found within the community museum of Teotitlan del Valle, in Oaxaca, Mexico. Identity, in its formation and maintenance is complexly negotiated in both Mexico and the United States. The presence of various cultures, traditions, and values allows a person to identify in multiple ways. Yet identity is not created and maintained in a social vacuum, but rather in uneven domains of power. Both Mexico and the United States possess groups that are structurally oppressed, often identifying themselves through stipulated categories while resisting them at the same time. Community museums are an interesting location to explore these contradictions and conundrums of identity. In this paper, which is based upon a three month period of ethnographic research in Oaxaca, as well as an examination of some community museums in San Antonio, Texas, I explore how community museums help groups of people to claim ownership of their identity, yet at the same time run the risk of stagnating and essentializing their identity. Although identity can be argued to be negotiable, my research shows that these negotiations can often be superficial, and that, in the end, identity in Mexico and the United States is a tool that is often grasped and held tightly to, regardless of positive or negative repercussions.

52. Minding the Gaps: Cultural Patterns on the London Underground

Nathan Turner, Department of Sociology and Anthropology, Southwestern University
Mentor: Maria Lowe, Department of Sociology and Anthropology, Southwestern University

Based on intensive participant observation and two in-depth interviews conducted in Fall 2005, this study explores the notion of a “culture” as visually represented by shared norms of behavior found within the diverse setting of the London Underground trains and stations. This study will explore whether such a pattern exists and if so, what the pattern may mean. The method of transit, personified as the symbol “The Tube,” is used to collectively represent citizens of the city, citing common characteristics between residents within the transport system. In deconstructing these symbols, it is possible to discover a potentially transient, shared “Tube” culture among Londoners, yet there are innumerable

of telomeres, thus preventing cellular senescence and apoptosis. An active area of anticancer drug development involves targeting and inhibiting telomerase activity. The purpose of this paper is to describe a variety of experimental telomerase inhibitors that work by different mechanisms to inhibit telomerase. The primary focus is on a class of inhibitors that interact and stabilize the G-quadruplex in order to inhibit telomerase.

37. Comic Books: A Cultural Battleground

Robin Hall, Department of English, Southwestern University
Mentor: Walter Herbert, Department of English, Southwestern University

Comic books have been a part of our culture since 1932, and from the moment they arrived on the scene they have caused controversy. Many objected to the violence and so-called depravity that was found on the pages of many comic books. My paper focuses on two major critical documents in the history of comic books, the Senate Judiciary Subcommittee on Juvenile Delinquency Hearings of 1954, and Dr. Frederic Wertham's book, Seduction of the Innocent. These documents are records of the major arguments of comic books in their first two decades of existence. The arguments made against the comic books represent a complex network of cultural fears. Traditionalists saw comic books as tools that would erode the bedrock of American society. It is my contention that many of the faults found in comic books fall into two main categories. First, the content of comic books served as a realization that traditional norms were not sufficient to produce a world where morality prevailed. Secondly, a new type of culture was emerging through various media including the comic book. Much of what a reader saw in a comic book was the revolution of different social norms. The appearance of these things was seen to undermine the American way of life. The different arguments are a way of seeing into the fears of American traditionalists who wished to maintain the status quo.

38. Analysis of a Vascularized Engineered Construct

Barrett P. Cromeens, Department of Biology, Southwestern University
Mentors: Maria Cuevas, Department of Biology, Southwestern University and Charles W. Patrick, Jr., MD Anderson Cancer Center

Breast cancer is an increasing clinical indication. Tremendous advances have been made in detecting and treating breast cancer, but a comprehensive cure remains elusive. Breast tumor resection results in large soft tissue deformities. Although reconstructive surgery solutions involving free tissue transfer from donor sites exist for post-lumpectomy and post-mastectomy breasts, there are inherent limitations and associated co-morbidities. Patient outcomes and quality of life can be enhanced if the resected breast mound

could be replaced with autologous adipose tissue. This study addresses this long-term objective by designing a vascularized tissue construct based on an artery and vein pair and preadipocyte seeding. If the artery and vein are separated by the correct distance, angiogenesis can occur between the vessels and be employed to support *de novo* tissue histogenesis (Microsurg 24:378-384, 2004). Silicone constructs of varying treatments containing a collagen/chitosan matrix were implanted into the groin of male Lewis Rats in hopes of observing adipogenesis. Immunohistochemistry and histomorphometric analyses are currently in progress and results will be presented.

39. Tradition Meets Modernity: The Function of Open-Air Markets Cross-Culturally
Katherine Wright, Department of Sociology and Anthropology, Southwestern University
Mentor: Melissa Johnson, Department of Sociology and Anthropology, Southwestern University

Using ethnographic research conducted in Austin, London, and Jamaica as well as informal observations in Crimea, China, and Japan I will explore the function of open-air markets in society. I am most interested in the social and economic reasons markets still flourish with the current societies cross-culturally. Having previously studied the role of women in open-air markets I have some knowledge of the social importance on a micro level, but would like to expand my research to a more macro-level framework and examine governmental and structural institutions as well as community support that allow and encourage the existence of open-air markets.

40. Conformity and Social Influence in Female College Students
Omaira Poonawala, Department of Psychology, Southwestern University
Mentor: Richard Osbaldiston, Department of Psychology, Southwestern University

The background for my study is the study conducted by Solomon E. Asch in 1957 called, Studies of Independence and Conformity: A Minority of One Against a Unanimous Majority. In this study, Asch investigated the effects of conformity on one participant in a room of confederates who gave the wrong answer to a question on purpose. Asch found that in the majority of cases, the actual research participant conformed to what the confederates were saying instead of giving the right answer. My study will replicate Asch's study but instead I will be looking at specifically the effects of gender in a conformity situation with an emphasis on female college students. I am going to see how females will react in the presence of a coed group and in the presence of an all-male group in a situation where they can either be honest or choose to conform. My hypothesis is that although the female participants may not

such a statement be taken seriously? In light of the depth and breadth of the humor within the symphony, and compared to the Seventh Symphony which preceded it in writing by a mere four months, most likely not. While Beethoven's music is full of humor and romantic irony, the Eighth Symphony seems to be one large joke. Unfortunately for Beethoven, most of his audience didn't understand it. Even for us today, Beethoven is taken so seriously, and our ears so desensitized that most people still don't understand the humor. From the subtle to the absurd, the Eighth Symphony strings joke after joke and pun after pun. This humor requires additional effort on the part of a conductor, for it is the conductor's main responsibility to elicit the composer's intention from the page and convey it to the listening audience. For the Eighth Symphony, this proves especially difficult, as the humor must be drawn out without reaching the point of absurdity, lest the point of the irony be lost. Obtaining an detailed understanding of this humor provides not only insight into Beethoven himself, but also holds strong ramifications for conducting the symphony.

50. Business as an Agent of Peace: Northern Ireland
Olivia Smith, Department of Economics and Business, Southwestern University
Mentor: Mary Grace Neville, Department of Economics and Business, Southwestern University

Globalization has connected the countries of the world creating a global market, global economy, and a global community. There is evidence that in this interconnected world, businesses have the potential to create sustaining peace between countries that have historically been at war. In "The Dell Theory of Conflict Prevention", Thomas Friedman theorizes that "no two countries that are both part of a major global supply chain will ever fight a war against each other as long as they are both part of the same global supply chain" (The World is Flat, p.421). His theory will be used to look at conflict on a national level to see how businesses in Northern Ireland are aiding in establishing lasting peace.

After various attempts at peace—the Anglo-Irish Treaty in 1921 and the Good Friday Agreement in 1998—there continues to be civil disturbances in the land, though greatly reduced in number. As lasting peace becomes more likely, this paper will seek to discover what role businesses and the Irish Tiger Economy have played. Through specific examples of corporate and industry actions to sustain peace, we search for various ways in which businesses can act as an agent of peace.

51. El Orgullo de la Pertenencia: Community Museums and the Pride of Identity Ownership in Mexico and the United States
Anita Fernandez, Department of Sociology and Anthropology and Latin American Studies

heat shock proteins in severed axons of the crayfish ventral nerve cord because this nervous system contains medial giant axons that can survive for months in vivo after they are severed from their cell bodies. Axons were severed for different lengths of time (5 hours, 1 day, 5 days, and 9 days) before dissection. Upon dissection, we observed a 2-3 mm gap between the rostral and caudal portions of the ventral nerve cord. Proteins from individual connectives (axon enriched samples) and ganglia (cell body enriched samples) surrounding the severance site were separated on SDS-PAGE gels, transferred to nitrocellulose and analyzed with mammalian antibodies. We confirmed that ubiquitin is present and detectable with a mammalian antibody in ventral nerve cords as well as samples of individual connectives and ganglia. We also confirmed that HSC70 and HSP 70 are abundant proteins in ventral nerve cord samples. These heat shock proteins may be involved in the survival of severed medial giant axons.

48. **How Different Are They?—Friendships in a Home School Support Group**
Annie Garcia, Department of Sociology and Anthropology, Southwestern University
Mentor: Sandi Nenga, Department of Sociology and Anthropology, Southwestern University

This study, based on field observations of children in a home school support group, investigates how children create and maintain friendships within this group. HomeSchool Texas is an inclusive support group in Texas serving over 1000 'members', though there are no membership requirements or dues. HST is a secular group and is open to all home schoolers. The group offers social activities for children such as field trips, co-op classes, and park days, among others. HST is comprised of families with children of all ages. In this study, students between the ages of three- twelve were observed in routine interactions with friends during weekly group meetings in local parks throughout the city. Many parents were eager to explain how the children in their group were 'different' from other kids. I observed the students in this group to attempt to describe what the friendships of these children looks like in reality. I argue that children in this group are likely to form friendships with peers of the same age and gender, but that these friendship groups are fluid, leaving room for children to cross the boundaries into mixed age and gender peer groups as well.

49. **The Joke No One Got: Humor and Romantic Irony in Beethoven's Eighth Symphony**
Walter Phillip Sterneman III, Department of Music, Southwestern University
Mentors: Terry Klefstad and Lois Ferrari, Department of Music, Southwestern University

Beethoven called the Eighth Symphony his best symphony, but can

conform in a situation where there are other females present, the presence of all males may influence them to respond to peer pressure.

41. **Finding Me Through You: The First-Year Student Struggle to Change and Maintain Identity and Friendship**
Krys Wyatt, Department of Sociology and Anthropology, Southwestern University
Mentor: Sandi Nenga, Department of Sociology and Anthropology, Southwestern University

Everyone has probably heard the saying that "college is a time to find yourself," but what exactly does that phrase mean? How does one "find oneself," and why is college the place to do it? This study explores how first-year college students change or maintain their identities, especially through choosing friendship groups and extra-curricular activities. In order to learn about the transition from high school to college, nine in-depth interviews with first-year students at a small, liberal arts university were conducted, exploring topics of friendships, identity, and extra-curricular activities in both high school and college. These students did, in fact, try to "find themselves" in college, but the way they conceptualized "finding yourself," as an introspective process, and the way they actually changed and maintained their identities, through social interactions, were very different. Most students were, however, successful in identifying aspects of themselves that they wanted to work on or change in college, and looked for friends undergoing similar searches to confide in and learn from.

42. **Building the Myth: Antiquity and Contemporary Greek Society**
Billy Ramos, Department of Sociology and Anthropology, Southwestern University
Mentor: Melissa Johnson, Department of Sociology and Anthropology, Southwestern University

I want to study the construction of the Greek identity and "Greekness" in relation to antiquity. I want to see what "modern Greeks" use to define their continuity as Greeks, even though the existence of Greek people spans over 3,000 years. There is a rich amount of cultural symbols in the construction of the Greek state and identity. The Greeks base their country's sovereignty and their ethnic identity on the idea that there is a connection between the ancient Greeks, from the 6th century B.C. to the modern era in the War of Independence in 1829. From this idea, Greeks validated their ethnic identity, even though there was a period of 400 years in which the Ottoman Empire had domination over them and there was intermarriage of the two cultures. I will argue that even with the 400-year gap, modern Greeks have just as much claim to this history as those who created it. I want to see from the beginning of Modern Greek history to the present, how modern Greeks use antiquity to

define themselves. I will use my personal journal, personal conversations with people and reflections to distill meaning from cultural symbols used in modern Greek identity.

43. Forest Stewardship Council Certification as Market-based Social Change: The Case of Futuro Forestal, Las Lajas, Chiriquí, Panamá
Aubrey Weeks, Environmental Studies Program, Southwestern University
Mentor: Ariel Rodriguez, University of Panamá

In the absence of strong environmental legislation, market-based strategies have emerged to address environmental and social problems. One such strategy is sustainable forestry certification. By insuring a set of principles for responsible production, producers and consumers may promote an environmental and social agenda within the marketplace. Designed to meet the Forest Stewardship Council's certification standards, Futuro Forestal, S.A. is changing the landscape and the lifescape in Las Lajas, Panamá, by striving for a high level of environmental, economic, and social responsibility. This study investigates the manifestations of this social agenda in the business and community.

44. Among the Shadows and Spaces of Image in Robert Frost's "Desert Places"
Sarah Hart, Department of English, Southwestern University
Mentor: James Kilfoyle, Department of English, Southwestern University

A close reading of Robert Frost's poem "Desert Places" reveals layers of symbolism. The poem's speaker comes to see his own loneliness and fear of isolation and chaos through his reflection on a wintry landscape. Orderly relationships that defy such loneliness grant meaning to his identity. This speaker's desperation to defend against isolation seems to motivate him to create poetry as a means of structuring chaos. The immense value the speaker seems to place on poetry may challenge our typical conceptions of reality and fiction. Such implications about our understanding of reality and fiction also suggest that images may play a more significant role in our own lives than we frequently realize.

45. We're Not Special Anymore: Identity Creation, Identity Loss, and Coping Strategies in Former Gifted and Talented Students
Ashley Heck, Department of Sociology and Anthropology, Southwestern University
Mentor: Sandi Nenga, Department of Sociology and Anthropology, Southwestern University

Although previous research has uncovered significant information about

the immediate consequences of being labeled gifted and talented (GT), less is known about the long-term consequences of such a label. This study investigates those consequences and attempts to discover whether or not that label leads to the creation and maintenance of a gifted and talented identity. The study is based on eleven in-depth interviews with students at a small, private liberal arts college. Although all participants had developed a salient GT identity during their time in the program, entering college marked the downfall of the identity. This paper explores how GT students develop a salient GT identity and the strategies used by former GT students to cope with the loss of that identity in college.

46. Genetic Algorithms and Neural Networks: The Building Blocks of Artificial Life
Jacob Schrum, Department of Mathematics and Computer Science, Southwestern University
Mentor: Walter Potter, Department of Mathematics and Computer Science, Southwestern University

Artificial Life is a field that deals with the question of what defines life. Interesting answers to this question are often found with the use of computer simulations that model an artificial world full of artificial organisms. The modeling process is often complex and requires knowledge drawn from diverse fields such as Biology, Psychology, Mathematics and Artificial Intelligence. This work describes the process used to model a computer simulation full of artificial animals that eat, breed, and die as they compete to survive. Two tools from the field of artificial intelligence that make such a model possible are genetic algorithms and neural networks, which originate from the fields of biology and neuropsychology respectively. They aid in making the simulation less 'artificial' and more 'natural'. Throughout the course of a given trial, the animal population evolves and diverges into separate populations with different distinguishing traits and eating habits. The results from three such trials are examined and presented, and the benefits of such a model are evaluated both in terms of the information it can provide to researchers in the fields of Artificial Life and Theoretical Biology and also in terms of how it could be used as an educational tool for teaching the principles of evolution and population dynamics.

47. Ubiquitin and Heat Shock Proteins in the Severed Ventral Nerve Cord of the Crayfish, *Procambarus clarkii*
Manjah Fernandez, Department of Biology, Southwestern University
Mentor: Rebecca Sheller, Department of Biology, Southwestern University

Ubiquitin is a highly conserved protein that may be involved in axonal degeneration processes of mammalian axons. We analyzed ubiquitin and other