

Undergraduate Scholarship
in the College of Arts and Sciences



WINTHROP UNIVERSITY
Book of Abstracts 2007

INTRODUCTION

The College of Arts and Sciences proudly presents our fifth Book of Abstracts that highlights the undergraduate scholarship conducted in the college by students with their faculty mentors. As the quote by James Russell Lowell implies, the pursuit of knowledge involves more than acquiring facts; it requires posing relevant questions, critically examining information, and clearly communicating conclusions. The high level of scholarship reflected in this book is a testament to the students' development as scholars and the effective mentorship provided by the Winthrop faculty.

We congratulate all the students and their mentors for the quality of their work and their willingness to share it with the greater academic community through presentations at regional, national, and international meetings.

We also thank Jessica Davis for editing the abstracts and two visual communication design majors for their excellent work on the book: Nathanael Rotherham for the cover design and Angela Kim Faison for the book layout.

Dr. Dwight Dimaculangan
Director of Undergraduate Research
College of Arts and Sciences

Dr. Debra C. Boyd
Dean of the College of Arts and Sciences

April 2007

CONTENTS

- 1 Honors Thesis Abstracts
- 7 Meeting Abstracts
- 48 Student-Faculty Collaborations
- 55 Winthrop University Undergraduate Research Initiative
- 56 Index of Students and Faculty Mentors

“TRUE SCHOLARSHIP CONSISTS IN KNOWING
NOT WHAT THINGS EXIST, BUT WHAT THEY
MEAN; IT IS NOT MEMORY BUT JUDGEMENT.”

James Russell Lowell, American Poet (1819-1891)

HONORS THESIS ABSTRACTS

THE PSYCHOLOGICAL IMPACT OF THE SIX DAY WAR ON ARABS AND ISRAELIS

Presented at the Southern Regional Honors Conference, Charlotte, NC,
March 29-31, 2007

The Six Day War was an astounding victory for Israel; in under a week, the nation was able to quadruple its territory, roust the Arab forces, and take its place as the dominant power in the Middle East. Following the war, the Israelis felt a huge rush of confidence that quickly became arrogance. They refused to believe that the Arabs were still anything resembling a threat. The Arabs, however, did not take the defeat lying down, and after a period of introspection and soul-searching, attacked in the Yom Kippur War and scored a political victory against Israel. The Six Day War is also the point at which Palestinians began asserting their identity apart from the rest of the Arab world, and the Palestinians' nationalist movement was born. The way these three groups reacted to the Six Day War completely changed the face of the conflict, and its repercussions led both the Arabs and Israelis to begin the peace process, while the Palestinian-Israeli conflict began to take precedence over the interstate conflict that had been the focus before.

Kathryn Farkas, 2007
Department of History
Honors Thesis Committee:
Edward Haynes, Ph.D.,
Christopher Van Aller, Ph.D.,
Virginia Williams, Ph.D.

THE EFFECTS OF INTERSCHOLASTICS SPORTS PARTICIPATION

In 1961, James Coleman published his book, *The Adolescent Society*, in which he examined what he considered the absence of academic excellence in American schools. Coleman's research led to his belief that American high schools were overemphasizing the importance of athletics and, in turn, diminishing academic achievement. Coleman's argument sparked a debate that is continued among researchers today. Though researchers have shown the positive impact of interscholastic athletics related to academic achievement, it is argued that the findings of these initial studies cannot be applied among all student athletes. Recognizing individual differences and the effects of outside influences, it is my goal to highlight the various impacts of race and social class. Through a methodical review of literature, I will examine the positive and negative effects of sports participation on academic achievement for African-American males and discover how to manipulate extracurricular involvement to best benefit the minority student.

David Harbin, 2007
Department of Psychology
Faculty Sponsor: Sandy
Wilson, Ph.D.
Honors Thesis Committee:
Jonathan Marx, Ph.D.,
Kathy Lyon, Ph.D.,
Evelyne Weeks, Ph.D.

THE OTHER AMERICANS: PUERTO RICANS AND THEIR STRUGGLES FOR CITIZENSHIP

Presented at the Southern Regional Honors Conference, Charlotte, NC, March 29-31, 2007

Emily Heckl, 2007
Department of Political
Science
Honors Thesis Committee:
Jennifer Leigh Disney, Ph.D.,
Karen Kedrowski, Ph.D.,
Michael Lipscomb, Ph.D.

Puerto Rico is a commonwealth of the United States. Commonwealth status is an interesting political phenomenon because it limits and affords different political and social rights to citizens. In the case of Puerto Rico, determining if commonwealth status is beneficial to Puerto Ricans has been a long running debate involving three main arguments: nation, state, or commonwealth.

This thesis will explore the following important question: what form of political organization is best suited for Puerto Rico? To determine a solution, one must first evaluate: (1) the historic development of Puerto Rico; (2) the current status of Puerto Rican government; and finally, (3) the three political and partisan positions of national independence, statehood, or commonwealth status.

THE ETHICAL MERIT OF THE USE OF TRANSGENIC PLANTS FOR EDIBLE VACCINE PRODUCTION

Samantha Reynolds, 2007
Department of Biology
Honors Thesis Committee:
Dwight Dimaculangan, Ph.D.,
Kristi Westover, Ph.D.,
David Meeler, Ph.D.

Combining a review of current molecular biology research and the utilitarian position in ethics, the merit of the use of transgenic plants for edible vaccine production will be analyzed. Experimental results and financial data will be collected via database searches, while current knowledge and opinions on the issue will be collected through a survey of the Winthrop community and statistically analyzed. Following the analysis, the data will be used to construct an ethical argument on the use of edible vaccines, both in principle and in contrast with standard vaccination methods. The survey data will also serve to frame the ethical discussion to focus on the most prevalent issues. The ethical argument will also address the potential issues concerning humanity and the environment that arise from furthering edible vaccine research.

Hallie Farmer, 2007
Department of Psychology
Honors Thesis Committee:
Cheryl Fortner-Wood, Ph.D.,
Kathy Lyon, Ph.D., and
Gary Alderman, Ph.D.

SECOND LANGUAGE LEARNING THEORIES AND INSTRUCTIONAL STRATEGIES

The current paper explores second language learning theories and the implications of those theories. Language theorists have investigated multiple aspects of (SLL) second language learning and applied various existing learning approaches to the study of SLL. The dominant currently accepted approaches include Noam Chomsky's Universal Grammar theory, cognitive approaches to SLL, Stephen Krashen's Input/Output

hypothesis, and sociocultural approaches to SLL. These approaches do not necessarily contradict each other, but instead focus on different aspects of the SLL process. Existing literature provides both confirmatory and contradictory evidence for each theoretical field, and theorists continue to expand research to develop more accurately defined explanations for SLL. The main focus of Universal Grammar theorists has been to determine if second language learners have no, partial, or full access to Universal Grammar when developing a second language. Cognitive theorists have applied the cognitive processing model of controlled processing and automaticity, Anderson's ACT* model, and connectionism to SLL. Krashen's Input/Output hypothesis eventually led to Long's interaction hypothesis. Studies of input, output, and interaction have contributed significantly to SLL research. Finally, socioculturalists base SLL approaches on Vygotsky's theories of scaffolding and the Zone of Proximal Development. SLL theorists approach SLL in a variety of ways, but within each approach some elements stand apart as more practical in their application to SLLers. Chomsky's Universal Grammar theory contributes little to developing SLL strategies. However, cognitive approaches, the Input/Output hypothesis, and the socioculturalist approaches all provide some insight into facilitation of second language development. As SLL approaches continue to expand research and elaborate upon current theories, methods of language instruction will also continue to improve. Ideally, future research will lead to more comprehensive approaches to SLL that will enable educators to more efficiently facilitate L2 learning.

THE TERRITORIAL INDEPENDENCE OF ABKHAZIA AND SOUTH OSSETIA GEORGIA

Presented at the Southern Regional Honors Conference, Charlotte, NC, March 29-31, 2007

Since the fall of the Soviet Union in the early 1990s the Republic of Georgia and The Russian Federation have been at odds. Georgia, a former Soviet Republic, has taken a pro-western stance in its efforts to develop itself and establish its place in the international community. This obviously has not made Russia happy and the relations between the two countries have been hostile to say the least since the early 1990s.

The relations between Georgia and Russia are very important to both nations and the disagreements that they have had over the years have taken the two nations from having good ties to being on the verge of war at other times. The relations that both of these nations possess are not only important to these nations but also to nations around the world—post soviet nations, the European Union, and the United States in particular. All of these nations play an integral role in the resolution of disputes between

Ian Jennings White, 2007
Department of Political
Science
Honors Thesis Committee:
Christopher Van Aller, Ph.D,
Jennifer Leigh Disney, Ph.D.,
Dave Pretty, Ph.D,

Georgia and Russia.

Two regions of the republic of Georgia, Abkhazia and South Ossetia, have been seeking independence from Georgia with the support and help of Russia. Both of these regions feel that they are ethnically and culturally different from Georgia and must be given independence from the control of Georgia.

Mikhail Saakashvili in 2004, after his successful Rose Revolution, proclaimed that he was going to bring about democratic and economic changes in Georgia. Along with these changes he included the settlement of issues surrounding Abkhazia and South Ossetia. Though all parties involved have tried to make progress, little progress has been made to date. This paper examines all attempts to resolve the conflict in Abkhazia and South Ossetia, Georgia. I determine if the work that has been done to resolve the issues can be continued or if drastic changes need to take place to make sure that all parties involved are satisfied and willing to work together in the resolution of the long-standing Abkhazia and South Ossetia independence movements.

DEVELOPMENT OF HYPOXIC BIO-REACTOR FOR A 3-D CARDIAC TISSUE CULTURE SYSTEM

Presented to the Biology Department, September 20, 2006, the Southern Regional Honors Conference, Charlotte, NC, March 29-31, 2007, the Big South Undergraduate Research Symposium, Myrtle Beach, SC, March 23-24, 2007, and the National Conference on Undergraduate Research, San Francisco, CA, April 12-14, 2007

Christopher Bennett, 2009
Department of Biology
Honors Thesis Committee:
Dwight Dimaculangan, Ph.D.,
William Rogers, Ph.D.,
Kristi Westover, Ph.D.,
Laura Glasscock, Ph.D.

During Myocardial Infarctions (MI), ischemia causes cell death (apoptosis and/or necrosis) through hypoxia and acidosis. The cellular responses to this damage are not well understood and there are few in vitro tissue culture models for studying hypoxia and acidosis in cardiac tissue. In this study, we are using a 3-D cardiac tissue culture system as an in vitro model of MI induced ischemia. To accomplish this we constructed a closed-circuit Hypoxic Bio-Reactor system (H-BR) that continuously monitors pH and dO₂ through a single-lined media source. We determined the circulating line to be 20% of the total volume and the flow rate to be 0.24mL per minute. We also determined approximately 8 minutes is required for the in-line solution to be circulated, and 31 minutes to completely turnover the media in the culture well in a 6-well plate (6mL in well + 1.5mL in line of H-BR totaling 7.5mL). To determine lag-time for meter reading, the pH of the solution was raised to pH 11.84 with 5M NaOH. The 11.84 pH required approximately seven minutes to register. To initially test the response of the Seeded Cardiac Tubes (SCTs) to hypoxic injury, we exposed them in the H-BR to different oxygen levels (atmospheric-21%, physiological-6%, and

hypoxic-1.5%) for at least fourteen hours and determined myocyte death by measuring Troponin-I release. To look for changes in gene expression we isolated RNA from the SCTs, and measured RNA concentration and purity with a spectrophotometer. The RNA samples are being used in Real Time-PCR to test for changes in gene expression of cytokines and hypoxic inducible factors (TNF- , HIF- , IL-1 , and IL-6), as compared to the control STO fibroblast cell line. We are trying to determine if the SCT's in vitro response mimics that of in vivo MI models.

ENGAGING FEMINIST CONTENTIONS: BUTLER, FRASER, AND A RADICAL DEMOCRATIC VISION FOR THE POST 9/11 WORLD
Presented at the Southern Regional Honors Conference, Charlotte, NC, March 29-31, 2007

This thesis discusses the complex relationship between the politics of recognition and the politics of redistribution, and uses that discussion to sketch the contours of a progressive politics that is relevant to the post-9/11 world. The starting point of my discussion is Judith Butler's 1989 *Gender Trouble*, a book that revolutionized much of gender studies and was a foundational text for Queer Theory. In *Gender Trouble* Butler critiques the heteronormative implications of the feminist movement in seeking liberation for "women," a category Butler finds problematic. Butler denounces subjectivity in favor of subverting identity through deconstructing gender as "performative." Butler bases her conception of human agency on the Foucauldian notion of a limit attitude, whereby confrontation with the boundaries of sexuality allows for the transgression of those boundaries. Thus, by deconstructing gender, one both confronts the limits placed on sexuality and exposes gender as a discursive societal performance. Writing eight years later in *Justice Interruptus*, Nancy Fraser is concerned with the influence of post-structuralists like Butler. Fraser agrees that the process of deconstruction has empowered many marginalized groups by promoting cultural representation, but argues that the efforts toward better representation have sidetracked the more important goal of eliminating inequality. Fraser characterizes this two-pronged issue as the representation-redistribution dilemma to show that: 1) as progressive as representation claims may seem, they have done little to curb social injustice; and 2) the dilemma can be best mediated by approaching both types of claims from a transformative, not affirmative, approach. Fraser advances the concept of radical democracy as the transformative approach necessary to solve injustices of both recognition and redistribution. By focusing on both scholars' work, my thesis examines how injustice continues to impede participation in democratic politics and why and how a progressive vision is even more necessary in the post

H. Howell Williams IV, 2007
Department of Political
Science
Honors Thesis Committee:
Stephen Smith, Ph.D.,
Jennifer Leigh Disney, Ph.D.,
Michael Lipscomb, Ph.D.

9/11 world than it was when Justice Interruptus first appeared. The thesis modifies Fraser's concept of radical democracy in a way that combines a skeptical outlook on identity formation with a vision of a more equitable society.

WORLD APPROACHES TO CRIMINAL RECIDIVISM: A COMPARATIVE ANALYSIS

Presented at the Southern Regional Honors Conference, Charlotte, NC, March 29-31, 2007

Brandy N. Hughes, 2007
Department of Sociology
and Anthropology
Honors Thesis Committee:
Douglas Eckberg, Ph.D.,
Bradley Tripp, Ph.D., and M.
Kelly James, Ph.D.

Though definitions and theoretical explanations for criminal recidivism are many and varied, recidivism affects correctional bodies in countries worldwide. Alarming high levels of criminal habituation are found in each of the three countries, the United States, Canada, and England, profiled in this paper. Though actual rates may vary, the general findings that a small portion of people commit a large portion of crimes and that a large portion of the criminal population have extensive criminal histories are true for all three countries. Approaches to reduce the effects of the problem have found mixed success. Work programs, drug and alcohol treatment, education programs, and targeted approaches are promising. Boot camps, probation, and parole are less so. Despite successful programs, however, recidivism rates appear to actually be rising. This indicates that something more, something better, has to be done to reduce criminal recidivism worldwide. A revolutionary prison work program, combined with education and addiction treatment options, may be able to do the job.

POVERTY AND POLICY PRIORITIES: LESSONS FROM THE GREAT SOCIETY

Hollie Blake, 2008
Department of Political
Science
Honors Thesis Committee:
Karen M. Kedrowski, Ph.D.,
Michael E. Lipscomb, Ph.D.,
Adolphus Belk, Ph.D.

In his 1964 State of the Union Address, President Lyndon B. Johnson declared an "unconditional war on poverty," making his proposal to end poverty a national policy priority and a fundamental part of his emerging vision for a "Great Society." The motivations for and the results of the "War on Poverty" remain controversial, but since the Johnson administration, there has been no other broad policy agenda targeted toward ameliorating the lives of poor Americans. In fact, the social welfare state has been in decline since the 1970s. The backlash against the War on Poverty and retrenchment from social welfare programs provides valuable insight into what kind of anti-poverty policies will and will not be effective in the U.S.

MEETING ABSTRACTS

WORKING PAPER ON SOLIDARITY ECONOMICS

Presented at the 102nd Annual Meeting of the American Political Science Association (APSA), Philadelphia, PA, September, 2006

At the end of the 20th century, Latin American countries and their people were struggling to cope with slashed social welfare programs, large amounts of foreign debt, unfavorable imbalances in trade, privatized national industries, and battered economies due to structural adjustment policies, free trade agreements, austerity programs, and other neoliberal reforms. Alternative economic practices emerged in the region as a response to hardships caused by neoliberalism and economic globalization. As communities and individuals working for economic alternatives began to form connections, “solidarity economics” arose to articulate those connections. Solidarity economics developed from a way to describe the community- and cooperative-based initiatives of those trying to cope with a global capitalist system into a movement uniting those attempting to change capitalism or carve out a different economic system altogether.

Hollie Blake, 2008
Department of Political
Science
Faculty Mentor:
Jennifer Leigh Disney, Ph.D.

JUSTICE AND THE HYPOTHETICAL IMPERATIVE

Presented at the South Carolina Society Philosophy Meeting, February, 2007

Through his concept of “the general point of view,” we can gather from David Hume’s moral theory that we are to treat people in the exact way in which the general person desires to be treated. These guidelines that we can empirically gather are remarkably similar to those that are found in Immanuel Kant’s categorical imperative. From either theory we can find that we ought to treat people not merely as a means to our ends, and optimally as an end in themselves. Both theories entail our assuming the inherent worth, dignity, and autonomy of our fellow human beings. I assert in this paper that certain aspects of Kantian moral theory are based on the false premise that rationality cannot judiciously have happiness as its aim. This allows us to retain the general self-serving nature of morality that can be seen in Hume’s theory. Although this purported function of morality might not have been accepted by Hume, it can nonetheless be gathered from his claims about the intentionality with which we pursue just action. I derive from this what I call the biological imperative, which commands us, first and foremost, to preserve the lives of those around us in order that we, the individual, may have a better chance at survival.

Melissa Knudstrup, 2008
Department of Philosophy
and Religious Studies
Faculty Mentors:
David Meeler, Ph.D. and
M. Gregory Oakes, Ph.D.

Using our pragmatic and rational sensibilities, we find that we best serve this biological imperative by adopting egalitarian principles that recognize and honor the qualities of existence that include dignity and autonomy. Ultimately, by pursuing a sophisticated system of international justice, we optimize our chances of global peace. Peace can be seen as the ultimate goal for humanity because it allows us the chance to pursue our ends most efficiently because of the absence of the perpetual threat of personal extinction.

EXPRESSION AND PURIFICATION OF ARGININE VARIANTS OF THE HIGH MOBILITY GROUP A1 (HMGA1) PROTEIN

Presented at the Conference for the National Organization for the Advancement of Black Chemists and Chemical Engineers

Richard Anderson, 2009
Kelly Pace, 2008
T. Cameron Waller, 2009
Department of Chemistry,
Physics, and Geology
Faculty Mentor:
Takita Felder Sumter, Ph.D.

The High Mobility Group A protein (HMGA) family is involved in neoplastic transformation and metastasis in cancerous cells. All members of this family are structurally similar and involved in many cellular functions. They are also found in high amounts in various different cancers. The primary focus of this research is to study the role of arginine methylation on the arginine 25 (R25) site of the HMGA1a protein. Arginine 25 (R25) is one of three different arginine sites on the protein that binds strongly to the minor groove of DNA. This site, like the others, is also methylated when found in cancer. Therefore, the overall goal of this research is to discover if this methylated arginine has any affect on the proteins' ability to bind to the minor groove of DNA targets. In order perform this study, arginine to alanine (R25A) and arginine to lysine (R25K) substitutions were created at the 25th residue of the protein using three different methods of mutagenesis. We evaluated the mutation efficiency of custom overlapping; computer generated overlapping and non-overlapping mutagenic primers in Stratagene's QuikChange Site-Directed Mutagenesis kit. Colony counts obtained indicated that a greater efficiency using the computer generated primers that overlapped the site of mutation when compared to those generated using non-overlapping and custom overlapping primers. R25A and R25K mutants were verified by sequence analysis and the results showed 100% rate of mutation in samples generated using the computer generated overlapping primers. Mutants constructed using custom generated overlapping primers were generated almost as efficiently (50% efficiency) as those constructed using the computer generated overlapping primers. We were unable to obtain successful clones in those experiments employing primers that flanked, but did not overlap, the site of mutagenesis. While mutagenesis was conducted using several studies, we have now focused our efforts on the overexpression and purification of the mutant proteins to determine how modifications at the DNA binding regions affect

their affinities for known target DNA sequences. It is predicted that careful evaluation of the role that arginine methylation plays in the function of HMGA1a will lead to the development of more effective cancer therapies.

A HISTORY OF SATAN: THE ORIGIN AND EVOLUTION OF THE CONCEPT OF SATAN IN MONOTHEISM

Presented at the Southern Regional Honors Conference, Charlotte, NC, March 29-31, 2007

Throughout history, monotheistic religions have the hard task of incorporating a workable account of evil into a single deity. In popular thought, Satan is closely tied to the evils of the world. However, reducing the concept of Satan to a mere answer to the problem of evil not only blurs the origin of the character of Satan, but subtracts from the many evolutionary stages that the concept of Satan has passed through. A broader method to delineating the properties of Satan is to examine its relation to the concept to God. The concept of Satan in monotheism is strongly dependent on the nature of the God of that religion. Just as the concept of God varies greatly from one religion to the next, the ideas of Satan are equally diverse throughout different faiths. The difference in the idea of God from one religion to another appears to account for a distinct perception of Satan. More specifically, the composition of Satan's character depends heavily on the level of benevolence and imminence attributed to God. Based on an examination of scriptures and holy texts, this relation is evident as the history of the concept of Satan is traced from its inception in Judaism, through Christian transformation, and Muslim reinterpretation.

Samantha Reynolds, 2007
Department of Philosophy
and Religious Studies
Faculty Mentor:
Peter Judge, Ph.D.

YOUNG ADULTS' PERCEPTIONS OF CHILD CARE EXPERIENCES AND FUTURE PARENTING PLANS

Presented at the Southeastern Psychological Association Conference, New Orleans, LA

Although much research has examined the short-term effects of child care, less research is available on how child care experiences are remembered by young adults and how those experiences influence their future parenting plans. The current study addressed this issue. Participants were 16 men and 39 women, with a mean age of 19.75 (SD = 1.95). Participants were given a 36-question survey related to child care experiences, current social skills, academic accomplishments, and future parenting plans. We categorized participants into four groups related to their childhood experiences: mother worked overtime, mother worked full-time, mother worked part-time, mother never worked. An ANOVA revealed that participants whose mothers worked overtime were less likely to agree

Katie Leonard, 2008
Department of Psychology
Faculty Mentor:
Merry J. Sleight, Ph.D.

that their needs were met as a child in comparison to participants whose mothers either worked full-time or not at all. We followed the same procedure and created four groups related to fathers' employment. There were no group differences. Participants were also categorized as raised by parents, raised by other family members, raised by a babysitter, or raised in daycare. Participants who were raised by parents were more likely to agree that the way they were raised impacted them than were participants raised in daycare; however, an examination of social and academic skills did not reveal a difference among these groups. Participants who were raised by other family members had lower 'Motivation to Learn' scores than participants raised by their parents or in daycare, perhaps suggesting that parents and daycare were environments more focused on teaching the child. The more participants agreed that they were satisfied with how they were raised, the more they agreed that all of their needs were met, and the more they agreed that it impacted who they had become. Regardless of their own upbringing, the majority of participants (88%) reported wanting to raise their children themselves. These findings suggest that child care experiences may impact young adults' memories of childhood; however, those experiences do not seem to predict young adults' accomplishments or their own parenting plans.

LONGITUDINAL AND CONCURRENT PREDICTORS OF CHILDREN'S SOCIAL COMPETENCY, ETHNIC IDENTITY, AND BEHAVIOR

Presented at the Biennial Meeting of the Society for Research in Child Development, Boston, MA, March, 2007

Casserly Daniels, 2008
Kathleen Jocoy, 2008
Department of Psychology
Faculty Mentor: Cheryl
Fortner-Wood, Ph.D.

Secondary analyses of the NICHD SECCYD examined early and concurrent factors that influence children's social and behavioral outcomes in 1st and 5th grades. Social skills, ethnic identity, and internalizing and externalizing behaviors were the outcomes of interest. Of child and playmate ethnicity and gender, only child gender explained differences in children's social skills in 1st grade once income was controlled. However, in 5th grade, it was child ethnicity (and not child gender or playmate characteristics) that affected social skills. Child ethnicity and gender played no role in internalizing or externalizing behavior ratings in grade 5, but boys were reported to display slightly more disruptive behavior.

A MANCOVA with child's ethnicity and gender as well as playmate's ethnicity and gender revealed one main effect (child's ethnicity) on a composite of ethnic identity variables in first grade. There were no interactions. In 5th grade, there were no main effects on ethnic identity, but there was a small significant interaction of child ethnicity and gender on ethnic identity. Although this difference may be explained as part of the normal process of ethnic identity development, it may also be the result of a

change in the measure used from 1st to 5th grade.

Our results indicate that children who had a playmate of a different ethnicity did not have higher social skills or fewer behavior problems in either grade. Perhaps this finding is similar to that of Burchinal and Cryer (2003), where a match between child and caregiver ethnicity did not predict higher scores on social or cognitive measures, but sensitivity and stimulation did. This makes sense given that mother's report regarding their child having a positive relationship with the playmate was more strongly related to child's social skills than sheer number of playmates ($r=.40, p=.000$ vs. $r=.09, p=.003$). However, even when this was controlled, both African American and Caucasian children who were classified as "not poor" had higher social skills scores than their "poor" peers.

CONFRONTING AMERICAN LIBERAL THOUGHT: BLACK POWER IN THE 1960s

Presented at the 2007 Annual Meeting of the South Carolina Political Science Association, February 24, 2007

In the early 1960s, disenchantment with the nonviolent direct action campaigns for civil rights was swelling. Members of Student Nonviolent Coordinating Committee (SNCC) were becoming radicalized by violence they had experienced as they tried to integrate the South. In preparation for the 1963 March on Washington, SNCC representative John Lewis prepared a speech, which other leaders eventually dissuaded him from giving, remarking on the violence civil rights workers in the South had experienced and the lack of protection by the federal government, expressing the developing doubt of civil rights workers in the ability of nonviolence to effect change, and warning of a new "scorched earth" policy to "burn Jim Crow to the ground," though still using nonviolence as the means. After the Democratic Party alienated the Mississippi Freedom Democratic Party at the 1964 convention, many civil rights activists abandoned their beliefs in American political institutions and the ethos of freedom and equality. Disillusionment with American liberalism and the slow pace of change gave rise to the Black Power Movement. Stokely Carmichael, who replaced John Lewis as chairman of SNCC, gave a speech about "Black Power" at a 1966 rally to honor the assassinated James Meredith. Carmichael signaled a change in SNCC, urging blacks to move from nonviolence to the use of violence for self-defense. Inspired by Carmichael, Malcolm X, leaders in the developing world, and other, black radicalism was growing in the 1960s. In October 1966, Huey P. Newton and Bobby Seale formed the Black Panther Party for Self-Defense, later the Black Panther Party, arguably the most significant organizations of the 1960s espousing the ideas of Black Power and nationalism. Out of

Hollie Blake, 2008
Michael Lipscomb, Ph.D.
Department of Political
Science
Faculty Mentor:
Adolphus Belk, Ph.D.

disillusionment with the political system of the United States, the Black Power Movement has provided one of the most important critiques of liberal thought, a cornerstone of American political culture. This paper seeks to elucidate that critique and its ongoing substantive import for thinking about African-American and American politics.

EVOLUTION OF B-CELL EPITOPES IN FOOT-AND-MOUTH-DISEASE VIRUS

Presented at the Big South Undergraduate Research Symposium, Myrtle Beach, SC, March 23-24, 2007 and the National Conference on Undergraduate Research, San Francisco, CA, April 12-14, 2007

Jessica N. Cooke, 2008
Department of Biology
Faculty Mentor:
Kristi M. Westover, Ph.D.

Foot and Mouth Disease Virus (FMDV) is a member of the family Picornaviridae and one of the most contagious animal diseases. Seven distinct serotypes have been identified: A, O, C, SAT1, SAT2, SAT3, and Asia 1. The positive-sense, single stranded RNA genome contains approximately 8,000 bases and, upon virus entry into the cell, is translated into a polyprotein that is post-translationally cleaved to make twelve individual mature proteins. Complete genome sequences were aligned at the amino acid level and phylogenetic trees were generated by the maximum parsimony (MP), maximum likelihood (ML), minimum evolution (ME), and neighbor-joining (NJ) methods using the uncorrected proportion of amino acid differences (p). Our results support the proposed classification scheme with two major lineages of serotype O most closely related to Asia 1. Within the A serotype, we found evidence of transmission via international trade from Europe to Central America. In addition, there was significant support for placement of two unclassified Taiwanese sequences within the serotype O clade. Within SAT serotypes, there was significant support for a fourth subtype. Four sequences, classified as SAT1 and SAT2 formed a clade, distinctly separate from the others. Synonymous mutation rates (pS) were the highest for the SAT serotypes, specifically in the portion of the genome coding for proteins 1A-1D. The greatest mean values of nonsynonymous substitutions (pN) occurred in serotype O for proteins where there are greater numbers of B- versus T-cell epitopes. For T-cell epitopes, mean overall pS values were greater than mean pN values suggesting conservation of these regions. In spite of the fact that the overall mean pS values exceeded pN values in both epitope and non-epitope regions, for serotype O, there was a significant difference between T-cell, B-cell, and non-epitope regions with respect to the proportion of individual comparisons with pN greater than pS, the proportion of pS equal to pN, and the proportion of pS greater than pN. In general, non-epitope regions had a significantly greater proportion of comparisons where pS exceeded pN,

possibly indicating that epitopes of both types are experiencing some level of positive selection.

THE DEMOGRAPHY OF RECIDIVISM

Presented at the Southern Sociological Society, Atlanta, April 12, 2007

Ongoing studies of criminal recidivism, or the tendency of released ex-offenders to engage in subsequent criminal activity, have shown the importance of employment in decreasing the risk for recidivism. Other theories have suggested that social stigma from the label of ex-offender may be the great determining factor in perpetuating criminal activity. Past studies have shown the relationship between recidivism and certain demographic characteristics of ex-offenders. This study aims to test some of the claims of one such earlier-conducted study with a different set of data to determine universality of the original findings. Tests show, however, that this study is inconsistent with the previous one by which it was shaped. Individual characteristics are not conclusive at all in determining the recidivism of ex-offenders released from jail. Two demographic characteristics, however, Hispanic origin and age, do yield significant effects in determining the recidivism of ex-offenders released from jail. These effects are not fully inclusive, however. Social factors may also play a large role in the occurrence of continued criminal activity.

Brandy N. Hughes, 2007
Department of Sociology
and Anthropology
Faculty Mentor:
Douglas Eckberg, Ph.D.

MALCOLM X'S RELIGIOUS EXPERIENCES: AN EXISTENTIAL ANALYSIS

Presented at the National Conference on Undergraduate Research, San Francisco, CA, April 12-14, 2007

The history and biography of Malcolm X is usually garnered with tales of militancy and destitution for oppressive whites of America. Some historians uphold misconceptions that Malcolm only reformed his troubled youth by becoming blindly single-minded and bent on overthrowing global white power. Malcolm, however, was a person like everyone else. His life constantly changed as those who taught him, interacted with him, and loved him changed, as well as the circumstances of his life and times. The philosophical school of existentialism strives to address the dynamics and experience of human life, and if applied to Malcolm, existentialism can reveal the shifts in his values as he became a student under Elijah Muhammad or after his Hajj to Mecca, two very vital points in Malcolm's life. In fact, these two events may be dually the most spiritually influential moments of his life, but one of these moments would doubtlessly have a greater effect in Malcolm's life than the other. There is hardly a direct way to measure the changes and compare them unless we accept that religious experiences lead to existential authenticity. If so, we can define the more

John "Heath" Whatley, 2007
Department of Philosophy
and Religious Studies
Faculty Mentors:
David Meeler, Ph.D.
and Dabian "Tyari"
Witherspoon, Ph.D.

effective religious experience in terms of Malcolm's authenticity after each event. In existentialism's terms, we can uncover the authenticity of Malcolm's involvement in these two events in an effort to show which event, his tutelage under Elijah Muhammad or his venture into orthodox Islam, influenced and directed his life with greater effect.

GENDER AND THE ENVIRONMENT

Presented at the Southern Sociological Society, Atlanta, April 12, 2007

Rachel Williams, 2007
Department of Sociology
and Anthropology
Faculty Mentor:
Douglas Eckberg, Ph.D.

The environment is an issue that has affected society since the beginning of time. Many people have argued that there are many differences between men and women when it comes to issues about the environment. The General Social Survey has asked many questions to find the way people feel about pollution and the environment. I used these questions to investigate if men and women have different views on the environment and pollution. I used the independent variable 'sex' and then focused on the dependent variables: 'how much money we are spending to improve and protect the environment', 'views of industrial pollution', 'what people think about pollution to our rivers, lakes, and streams', 'how often people make an effort to recycle', and 'how willing people would be to pay higher taxes to protect the environment'. I hypothesized that females will be more concerned with these environmental issues, but I was proven wrong. The only relationship that showed statistical significance was the relationship between 'sex' and 'how willing you be to pay higher taxes to protect the environment', and this showed that males would be more likely to pay a higher tax to protect the environment. I find, in most cases, no relationship between gender and views on the environment.

INFLUENZA GENOMICS: VIRULENCE OF PAST AND PRESENT STRAINS

Presented at the Big South Undergraduate Research Symposium, Myrtle Beach, SC, March 23-24, 2007 and the National Conference on Undergraduate Research, San Francisco, CA, April 12-14, 2007

Geoff Vana, 2007
Department of Biology
Faculty Mentor:
Kristi M. Westover, Ph.D.

Influenza viruses cause an estimated 36,000 deaths worldwide per year. All of the currently circulating human viruses originated from the pandemic virus of 1918 that killed an estimated 20-40 million people worldwide. Although individual proteins such as hemagglutinin and neuraminidase play important roles in virulence, analysis of complete genomes provide more characters for comparison and a more powerful analysis of the hypothesis that the 1918 "Spanish Flu" was avian in origin. This implies that recent H5N1 host shifts from birds to humans may lead to a pandemic with large cost to human life. Previous studies have addressed this

question with analysis of phylogenetic relationships based on single genes. To date, no one has approached this problem using entire genomes. We collected individual sequences for all coding regions from representatives of the four dominant human influenza strains (H1N1, H3N2, H2N2, H5N1) where entire genomes are reported. We concatenated these, excluding overlapping regions, and aligned by amino acids. Phylogenies were constructed by neighbor-joining, maximum parsimony, maximum likelihood, and minimum evolution methods. We found elevated synonymous (pS) and nonsynonymous (pN) substitution rates in H5N1 strains compared to the other groups, which would be likely with an avian origin of 1918. However, our results showed 1918 basal to H1N1's and together this clade was sister to the group containing H5N1's. We found this result with the phylogeny based on entire genomes and when individual genes were analyzed separately. In conclusion, we found no evidence that the 1918 "Spanish Flu" was avian in origin.

WHAT IS THE EFFECT OF TELEVISION VIEWING ON THE SOCIETY? Presented at the Southern Sociological Society, Atlanta, April 14, 2007

In this paper I explore television viewing's effect on society when it comes to the degree of which people are self-centered in society. I use three measures self-centeredness: empathy, helpfulness, and pro-social behaviors. I hypothesize that today's television viewing is creating a society that is self-centered and that lacks the element of caring for others. Neither the empathy or selflessness items supported my hypothesis. The index that measures pro-social behavior ("helpful") supports my hypothesis.

Sara B. Bridges, 2006
Department of Sociology
and Anthropology
Faculty Mentor:
Douglas Eckberg, Ph.D.

CRIMINAL VS. NON-CRIMINAL: AN INVESTIGATION INTO RELATIONSHIPS WITH AGE, DEGREE, AND RACE Presented at the Southern Sociological Society, Atlanta, April 14, 2007

This research paper investigates the application of labeling theories and recidivism theories to people's attitudes about actions police should be able to perform concerning a man with a criminal record and a man without a criminal record. Eight questions were used from the GSS, four regarding a man with a criminal background and four regarding a man without a criminal background. The beginning of the first four questions say "Suppose the police get an anonymous tip that a man with a long criminal record is planning to break into a warehouse. Please circle a number for each question to show if you think police should be allowed without a court order to." and the rest of these questions are "Keep the criminal under surveillance," "Tap criminals phone," "Open criminal's mail," and "Detain

Kristy Beth Taylor, 2006
Department of Sociology
and Anthropology
Faculty Mentor:
Douglas Eckberg, Ph.D.

criminal overnight for questioning.” The other four questions are the same except that they focus on a man without a criminal record. From the labeling theory, I hypothesize that people will be more willing to approve the police taking those actions against the known criminal. From the recidivism theory research, I hypothesized that respondents would agree that police should take action against those with a criminal background due to recidivism statistics being so high. Overall, the labeling theory was supported and the recidivism theory varied depending on race, educational attainment, and gender. These three variables showed to somewhat predict favorability toward the police’s actions.

SUSTAINABLE DEVELOPMENT AND DEVELOPING COUNTRIES: DO WE WANT ANOTHER NORWAY OR UNITED STATES?

Presented at the National Conference on Undergraduate Research, San Francisco, CA, April 12-14, 2007

Jessica Bean, 2008
Department of Human
Nutrition
Faculty Mentor:
Christopher Storie, M.A.,
Ph.D.(ABD)

Our resources are becoming depleted at such a rate that soon the Earth will not be able to sustain the population of the world. As a result, the United Nations conference in Rio de Janeiro agreed to a set of guidelines called Agenda 21 in an effort to combat this problem. What this agenda called for was a change in the use of the Earth’s resources, and that all resources must be handled in such a way as to prevent depletion. The United Nations Commission on Sustainable Development (UNCSD) recognizes the crucial necessity for nations to start employing practices that will sustain resources and halt practices that lead to environmental degradation. The UNSCD has become an essential advocate for implementing sustainable development in developing countries. Developing countries still have the ability to support growth that implements sustainable methods of natural resource use. Many obstacles oppose the implementation of sustainable development in developing countries; the two most prevalent include overpopulation and poverty. Approaching these issues that are the greatest challenges for implementing sustainable development in these countries can lead to a better understanding of how these issues can be addressed. This research demonstrates that unless something changes, these countries cannot develop into what some developed countries have become today. If every developing country adopted the current unsustainable lifestyle of the average US citizen, as an example, the Earth would be unable to support this massive increase in consumption. However, the Earth would be able to support the lifestyle of all developing countries, if they followed the methods of Norway. Norway has the highest rating on the human development index and has promoted the most progressive sustainable

methods of natural resource use. Poverty and overpopulation will still be the greatest obstacles for these countries, but they can, and must, develop into countries that practice renewable, sustainable resource use.

INJURY REMODELING AND ORGANIZATION OF CARDIAC MYOTUBES

Presented at the Big South Undergraduate Research Symposium, Myrtle Beach, SC, March 23-24, 2007 and the National Conference on Undergraduate Research, San Francisco, CA, April 12-14, 2007
1st Place Winner of the Houk Undergraduate Research in Biology Award for Fall 2006

Few in vitro tissue culture models exist to study myocardial infarctions (MI). A model recently developed at the University of South Carolina-School of Medicine for cardiac development is a tube of aligned type I collagen seeded with E15 rat ventricular myocytes. This model allows for the normal development of the myocytes and has been used to study cardiac development and valvulogenesis. Here, we report the use of this system as an in vitro model of MI with a focus on the cellular responses to injury. Following a MI in humans and in animal models, mechanisms become activated resulting in ECM remodeling, including an increase in the deposition of collagen. My work investigated the organization of the cardiac myotube, in addition to ECM remodeling in response to cryoinjury. Picosirius red staining was used to confirm the composition of the myotubes, as well as examine the deposition of collagen post-injury. Myotubes were injured using a pellet of dry ice, and then maintained for either 1 week or 5 weeks. Changes in Picosirius red staining between a myotube without cells and a myotube with cells are most likely due to collagen type I deposition, cells modifying the ECM. Images taken of these myotubes also indicate the synthesis of type III collagen within one week of injury, which is similar to synthesis patterns seen in vivo. To confirm the collagen deposition, antibodies for collagen type I and type III were used to determine new collagen content; however, this produced inconclusive results, and is being repeated. Another method used to illustrate the organization of the myotubes was scanning electron microscopy. Images of an uninjured myotube revealed cells in multiple layers on the surface of the myotubes, and images taken from a myotube without cells illustrated the fibrous nature of the collagen substrate. My project also included optimizing sample preparation techniques in the laboratory. Using a systematic approach I was able to show cells were becoming detached

Jenny Johnson, 2007
Department of Biology
Faculty Mentors:
Dwight Dimaculangan,
Ph.D. and Kim Wilson

from the substrate surface during antibody staining procedure with DAPI during the washing and mounting steps, which led to changes that are now standard in the lab.

PALLADIUM-CATALYZED HOMOCOUPLING OF ARENEDIAZONIUM SALTS: AN OPERATIONALLY SIMPLE SYNTHESIS OF SYMMETRICAL BIARYLS

Presented at the 58th Southeast Regional Meeting of the American Chemical Society, Augusta, GA, November, 2006

Monique K. Robinson, 2009
Department of Chemistry,
Physics, and Geology
Faculty Mentor:
James M. Hanna, Jr., Ph.D.

The symmetrical biaryl unit is prevalent in a number of biologically active natural products such as the michellamines, which have received recent attention as potent anti-HIV agents, as well as in ligands for chiral catalysis such as the BINOLs. Symmetrical biaryls have traditionally been produced from aryl halides using a stoichiometric amount of copper metal or a copper (I) salt (the Ullmann reaction), or in catalyzed processes using nickel or palladium compounds along with a stoichiometric amount of a secondary reductant (such as zinc). Although the homocoupling of arenediazonium salts using stoichiometric amounts of a copper (I) salt is known as a route to symmetrical biaryls, catalytic methods are not as well studied. Our efforts in this area have led to the development of a palladium-catalyzed homocoupling of arenediazonium salts using palladium acetate in methanol solvent. The procedure is operationally simple; it is carried out in air using commercially available reagents and solvents, and does not require an external reductant. Both symmetrical biaryls and arenes (reduced products) are formed under these reaction conditions, and it was found that the product yield and distribution was affected by reaction concentration, catalyst loading, and catalyst type. Palladium acetate was found to be the most optimum catalyst. Higher reaction concentrations favored the formation of the biaryl over arene, but at the expense of total yield. Catalyst loadings of 10 - 20 mol% led to similar yields and biaryl/arene ratios, while lower catalyst loadings gave lower yields and a greater proportion of arene. It was also found that chemoselective homocoupling in bromo-substituted arenediazonium salts could be accomplished, thus allowing further transformations to be carried out on the product.

Melissa Williams, 2007
Emily Davis, 2006
Department of Psychology
Faculty Mentor:
Merry J. Sleigh, Ph.D.

EFFECTS OF PRENATAL VISUAL STIMULATION ON INCUBATION LENGTH AND HATCH PATTERNS OF BOBWHITE QUAIL

Presented at the International Society for Developmental Psychobiology Conference, Atlanta, GA

Previous research revealed that turkey and leopard gecko embryos exposed to prenatal visual stimulation hatched earlier than control

embryos (Fairchild & Christensen, 2000; Sleight & Birchard, 2001). This study examined incubation times and hatching behavior in bobwhite quail embryos under different visual stimulation regimes. Visual stimulation consisted of light flashed at 2 cps. Eggs were randomly assigned to groups such that egg weights did not differ between conditions. One group of embryos (n = 35) was exposed to stimulation beginning at Day 10 of incubation and continuing until the time of hatch. Thirty-five additional embryos were exposed to stimulation beginning at Day 18 of incubation and continuing until hatch. Control embryos (n = 35) were incubated with no augmented visual stimulation. Results demonstrated that prenatal visual stimulation beginning at Day 10 delayed hatching, while stimulation beginning at Day 18 slightly accelerated hatching. Experimental embryos also had significantly lower variability in hatch rates than did control embryos, which may reflect a mechanism to enhance survival. The degree of rotation in the eggshells revealed no differences in hatching pattern among the three groups. In previous research, bobwhite quail exposed to visual stimulation throughout incubation exhibited lower heart rates than embryos exposed to lesser amounts of stimulation (Sleight & Birchard, 2006). One possible explanation for the current findings is that lowered arousal levels delayed hatch, while slightly accelerated levels facilitated hatch.

EARLY MUSIC EXPERIENCE AND YOUNG ADULTS' CREATIVITY, SELF-ESTEEM, AND SENSITIVITY TO CRITICISM

Presented at the Southeastern Psychological Association Conference, New Orleans, LA, the Big South Undergraduate Research Symposium, Myrtle Beach, SC, March 23-24, 2007, and the National Conference on Undergraduate Research, San Francisco, CA, April 12-14, 2007

Recent research suggests that early music exposure can improve children's cognitive abilities (Schellenberg, 2006) and self-confidence (Costa-Giomi, 2004). The purpose of the current study was to examine early music experience, creativity, self-esteem, and sensitivity to criticism. Participants consisted of 108 young adults. Each participant was given a blank piece of paper box printed on it and told they had six minutes to use the box as they wished. Next, participants completed a 38-question survey comprised of Rosenberg's (1965) Sensitivity to Criticism Scale, the Single Item Self Esteem Scale (Robin, 2001), and questions to assess past musical experience. Four subject matter experts rated the contents of each box. The scores were summed to create a 'Creativity Score.' Results revealed no differences in creativity based on gender, race, personal musical ability, or paternal musical ability. In contrast, the higher the creativity score, the more instruments the participant's mother played during the participant's

Elizabeth Williams, 2007
Department of Psychology
Faculty Mentor:
Merry J. Sleight, Ph.D.

childhood, $r = .30$, $p < .05$, and the higher the participants' high school GPA, $r = .27$, $p < .05$. Results also revealed no differences in self-esteem based on gender, race, or early music experience; however, participants believed that music experience was related to self-esteem. Music majors were more likely to agree than non-music majors that children who have musical training have higher self-esteem than children who do not, $t(106) = 3.08$, $p < .05$. Men were more likely than women to agree that musical training during childhood results in higher self-esteem, $t(106) = 2.19$, $p < .05$. Caucasian participants were also more likely to agree with this notion than were African-American participants, $t(102) = 2.02$, $p < .05$. Perhaps as a result of these beliefs, the following groups also were more likely to indicate that it is important for their children to take music lessons: music majors [$t(106) = 2.71$, $p < .05$], men [$t(106) = 2.60$, $p < .05$], and Caucasians [$t(102) = 3.09$, $p < .05$]. In general, these findings indicate that the relationship between early music training lead to different belief systems rather than unique adult behaviors.

ALEXITHYMIA AS A PREDICTOR OF SELF-INJURIOUS BEHAVIORS, SELF-ESTEEM, AND SENSITIVITY TO CRITICISM

Presented at the Southeastern Psychological Association Conference, New Orleans, LA and the National Conference on Undergraduate Research, San Francisco, CA, April 12-14, 2007

Hallie Farmer, 2007
Jessica Hudgens, 2007
Department of Psychology
Faculty Mentor:
Merry J. Sleight, Ph.D

Alexithymia translates as "without words for feelings." Previous research has revealed a relationship between alexithymia and self-injurious behaviors (Becker-Stoll & Gerlinghoff, 2004; Hund & Espelage, 2005; Paivio & McCulloch, 2004). The current study further examined this issue. Participants were 25 men and 97 women. The mean age was 22.17 (SD = 5.06). Sixty-nine percent were Caucasians and 27% were African-Americans. Participants completed the Toronto Alexithymia Scale (TAS-20; Bagby, Parker, & Taylor, 1994), Eating Attitudes Test (EAT-26; Garner & Garfinkel, 1979), Single Item Self Esteem Measure (SISE; Robbins, 2001), Sensitivity to Criticism Scale (Robbins, 1965), and questions regarding self-harm and drug and alcohol use. Results revealed that TAS scores correlated positively with participants' EAT scores ($r = .23$, $p < .05$), times they engaged in self-injury ($r = .30$, $p < .01$), SISE score ($r = -.42$, $p < .01$), and sensitivity to criticism score ($r = .22$, $p < .05$). TAS scores positively correlated with negative consequences of drinking, $r = .29$, $p < .01$. Sensitivity to criticism scores were positively correlated with self-injury, $r = .25$, $p < .01$, and negatively correlated with self esteem score, $r = -.49$, $p < .01$. Self esteem negatively correlated with number of consequences due to drinking, $r = -.22$, $p < .05$ and EAT score, $r = -.37$, $p < .01$. Caucasians reported a greater number of consequences related to drinking than

African-Americans, $t(117) = 2.60, p < .05$ and more regret following drinking, $t(117) = 3.17, p < .01$. Women had higher sensitivity to criticism scores than men, $t(118) = -2.58, p < .05$. Results revealed no differences between students involved in the Greek system and non-Greeks. Participants who reported taking more than the recommended dosages of over-the-counter medication had higher TAS scores, $t(120) = -2.74, p < .01$, more consequences as a result of drinking, $t(120) = -4.30, p < .01$, higher EAT scores, $t(120) = 2.01, p < .05$, lower self-esteem, $t(120) = 2.59, p < .01$, and greater rates of self-injury, $t(120) = -3.57, p < .01$, than participants who took only recommended dosages.

PERCEPTIONS OF PROFESSOR AND SYLLABUS CLARITY AS PREDICTORS OF COURSE SUCCESS

Presented at the Southeastern Psychological Association conference, New Orleans, LA

The current study investigated how clarity of expectations influenced student evaluations and performance. Participants were 34 men and 47 women, equally divided between underclassmen and upperclassmen. The mean age was 20.48 ($SD = 2.31$). 62% of the sample were Caucasian, 30% were African-American, and the remainder represented other ethnicities. Participants, sampled from upper and lower level classes in business and psychology, responded to questions from the Student Course Experience Questionnaire (Institute for Teaching and Learning, 2006). Results revealed that the higher the expected grade in a course, the clearer of an idea the participants had about the course expectations [$r = .31, p < .01$], the more participants understood the standard that was expected [$r = .38, p < .01$], and the clearer the professors' explanations of course material [$r = .27, p < .05$]. Despite these positive correlations between clarity of expectations and expected grade, the expected grade was highest in the course with the least detailed syllabus, $F(2, 80) = 22.46, p < .05$. These findings suggest that students' perceptions of course clarity are not based on the syllabus only. Expected grade also positively correlated with the professor providing helpful feedback [$r = .31, p < .01$], and with the course stimulating enthusiasm for learning [$r = .30, p < .01$]. The lower the expected grade, the more pressure the participants felt in the class [$r = -.48, p < .01$], and the more they felt the workload was too heavy [$r = -.48, p < .01$]. Underclassmen were more likely to agree than upperclassmen that a detailed syllabus motivated them [$t(82) = 2.05, p < .05$], and had a lower expected grade [$t(81) = -3.34, p < .05$]. African-Americans were more likely to agree than Caucasians that a detailed syllabus motivated them [$t(77) = -2.03, p < .05$],

Justine Rossi, 2008
Lindsay Drake, 2007
Montrell Mitchell, 2008
Department of Psychology
Faculty Mentor:
Merry J. Sleight, Ph.D.

while Caucasians were more likely to agree than African-Americans that a longer syllabus motivated them [$t(77) = 2.18, p < .05$]. We found no gender differences. The lack of group differences suggests that, regardless of the diversity among them, students in the classroom may share some common perceptions.

RELATIONSHIP BETWEEN PARENTAL INVOLVEMENT AND LENGTH OF SPORTS PARTICIPATION THROUGH YOUNG ADULTHOOD

Presented at the Southeastern Psychological Association Conference, New Orleans, LA and the Big South Undergraduate Research Symposium, Myrtle Beach, SC, March 23-24, 2007

Christina Mastrianni, 2007
Brecken Hentz, 2007
Andy Reid, 2007
Erin Wilcox, 2007
Caroline Wylie, 2007
Department of Psychology
Faculty Mentor: Merry J.
Sleigh, Ph.D.

Parental support is related to athletes' increased enjoyment and performance during childhood (Barber, Sukhi, & White, 1999; Collins & Barber, 2005; Hoyle & Leff, 1997). We examined how parental support affected sports participation through young adulthood. Participants were 13 men and 48 women, primarily Caucasians and African-Americans. The mean age was 19.7 (SD = 2.25). Participants were given a 30-question survey modified from Hoyle and Leff (1997). We computed Mother Support (MS), Father Support (FS), Mother Pressure (MP), and Father Pressure (FP) scores each participant, with a possible range of six to 24. The mean was 20.43 (SD = 3.50) for MS, 19.88 (SD = 3.95) for FS, 7.99 (SD = 2.45) for MP, and 8.69 (SD = 3.13) for FP. The higher the MS, the higher the FS score, $r = .71, p < .01$. The higher the income, the higher the MS score, $r = .27, p < .05$, and the higher the FS score, $r = .48, p < .01$. The higher the MS score, the more the participants agreed that they will play sports the rest of their lives, $r = .43, p < .01$. The higher the FS score, the longer the participants played intramural sports, $r = .86, p < .05$, and JV sports, $r = .47, p < .05$. The higher the MP score, the higher the FP score, $r = .81, p < .01$. There were no other relationships related to pressure or support scores. Male athletes reported higher MP scores than women, $t(57) = 2.29, p < .05$. We categorized participants into five groups related to their current sports participation. An ANOVA revealed that intramural or NCAA level participants were more excited about sports than people in the comparison groups. The participants in the ad hoc group reported lower levels of sports enjoyment, $F(4, 29) = 5.44, p < .01$, and were least likely to report they would play sports for the rest of their lives $F(4,29) = 3.46, p < .01$, relative to comparison groups. Parental support appears to increase the length of time that an athlete will stay involved in sports.

TEACHING TUNES: USING MUSIC TO ENHANCE PSYCHOLOGY CLASSES

Presented at the National Institute on the Teaching of Psychology Conference, St. Pete's Beach, FL

Music exists universally within cultures and has evolved in its styles and functions throughout history. Because of its prevalence, music has become a global form of communication (Stolba, 1998). Recent research suggests that music can be a valuable communication tool in the classroom, enhancing learning with creativity (Rauscher, 2003). Providing students with a quality education is a priority among universities and colleges. However, the use of creative teaching has become subordinate to traditional reading, writing, and arithmetic methods, especially in higher education (Barnes, Grainger, & Scoffham, 2004). Creative teaching techniques foster students' imagination and abstract thinking (Barnes, Grainger, & Scoffham, 2004). These are vital skills for learning, regardless of age. With the demise of creative teaching, learning environments have become predictable and routine. This trend can suppress students' need to acquire new concepts in novel ways (Barnes, Grainger, & Scoffham, 2004). This current project presented teachers with creative teaching ideas using the power of music in the psychology classroom. For a small psychology class, music can create a comfortable learning environment as an icebreaker. In an Abnormal Psychology class, music could be used as a launch pad for a discussion on stigmas within society. A Developmental Psychology class can use music to compare and contrast changes in concepts such as love and sex over the years and across ages. The therapeutic capacity of music for relaxation can be demonstrated and discussed in a Health Psychology class. And in a Physiological Psychology class, music could be incorporated through a discussion of emotions, arousal, memories, and the connection to the body's nervous system. For each class/topic typically taught in a psychology curriculum we offered ideas on using music to illustrate concepts, encourage class participation, and enhance retention of material. Researched findings on the importance of music and education with learning and teaching were also presented.

YOUNG ADULTS' PROCRASTINATION AND INDECISIVENESS IN ACADEMIC AND NON-ACADEMIC PURSUITS

Presented at the Southeastern Psychological Association Conference, New Orleans, LA and the Big South Undergraduate Research Symposium, Myrtle Beach, SC, March 23-24, 2007

The current study examined procrastination and indecisiveness.

Elizabeth Williams, 2007
Department of Psychology
Faculty Mentor:
Merry J. Sleight, Ph.D.

Brittany Martin, 2008
Ashley Tuttle, 2008
Amanda Loveland, 2008
Lindsey Ryan, 2008
Department of Psychology
Faculty Mentor:
Merry J. Sleight, Ph.D.

Participants were 21 men and 44 women. The mean age was 20.23 (SD = 1.84). Sixty eight percent were Caucasian, 25% were African-American, and the remainder represented other ethnicities. Participants were given the 'General Procrastination Scale' and the 'Adult Inventory of Procrastination Scale' developed by Ferrari, McCown, and Johnson (1995). We included the 'Indecisiveness Scale' (Germeijs & Boeck, 2002) and questions to assess current participant behaviors related to academics, employment, and romantic relationships. We computed a 'Procrastination Score' for each participant, with a possible range of 20 to 100. The mean score was 58.40 (SD = 13.33). We computed an 'Indecisiveness Score' for each participant, with a possible range of 16 to 80. The mean score was 45.51 (SD = 11.19). The higher the procrastination score, the higher the indecisiveness score, $r = .49$, $p < .01$. The higher the procrastination score, the more likely participants were to forget about club meetings, $r = .52$, $p < .01$. The higher the indecisiveness score, the more likely participants were to forget about club meetings, $r = .30$, $p < .05$. There were no other significant behaviors related to procrastination, including no relationship to academic performance. In contrast, the higher the indecisiveness score, the more participants agreed that they liked long distance relationships to avoid commitment, $r = .37$, $p < .01$, and the more they agreed that they had broken off previous relationships due to fear of commitment, $r = .39$, $p < .01$. The higher the indecisiveness score, the more likely participants were to limit the time they spent with their significant other, $r = .32$, $p < .05$. There were no other significant relationships with indecisiveness scores, including no relationship to academic performance. We compared men and women, African-Americans and Caucasians, employees and unemployed, and volunteer workers to those not involved in volunteer work. We found no differences in procrastination or indecisiveness. These findings suggest either that procrastination and indecisiveness occur at constant rates in the young adult population or that these behaviors do not affect job performance or volunteer participation.

GENDER AND RACE DIFFERENCES IN PERCEPTIONS OF SAFETY ON COLLEGE CAMPUSES

Presented at the Big South Undergraduate Research Symposium, Myrtle Beach, SC, March 23-24, 2007

Melanie Hildebrant, 2007
Melissa Kinyon, 2008
Department of Psychology
Faculty Mentor:
Merry J. Sleight, Ph.D.

Gender, previous victimization and campus geography are factors that can influence perceptions of safety on college campuses (e.g., Kirk, 1988; Schafer, Huebner, & Bynum, 2006). Male and female college students ($n = 64$) completed a 34-question survey that assessed perceptions of safety, fear levels, and precautionary behaviors. We computed an overall 'Safety Score' (SS) for each participant, with a higher score indicating a greater

feeling of safety. The possible range was 4 to 16. The mean score was 11.62 (SD = 2.40). Safety scores were positively correlated with being a fearful person, $r = -.41$, $p < .01$, and with believing that the typical student steals, $r = .25$, $p < .05$. Compared to women, men had a higher SS, $t(61) = 2.52$, $p < .05$, felt safer on campus at night, $t(62) = 2.36$, $p < .05$, and agreed less that they were “fearful” people, $t(62) = -2.17$, $p < .05$. There were no other gender differences. Results also revealed that compared to African-Americans, Caucasians had a higher SS, $t(59) = 3.18$, $p < .01$, were more likely to agree that the world is a safe place, $t(60) = 2.13$, $p < .05$, and were more likely to agree that minorities are safe on campus, $t(59) = 5.82$, $p < .01$. Caucasians also were less likely to agree that the typical college student will steal if given the chance, $t(60) = -2.95$, $p < .01$. One possible explanation for these differences is that African-Americans were more likely to agree that they had been a victim in the past than were Caucasians, $t(60) = -2.19$, $p < .05$. In addition, African-Americans reported being less aware of safety services on campus. We also found relationships between safety and academic achievement. The higher the GPA, the higher the safety score, $r = .45$, $p < .01$, the more participants reported the world as being a safe place, $r = .30$, $p < .05$ and the more they believed that minorities are safe on campus, $r = .40$, $p < .01$. These findings may be useful for students and campus officials.

ALEXITHYMIA AND SELF-INJURIOUS BEHAVIORS IN YOUNG ADULTS
Presented at the Southeastern Psychological Association Conference, New Orleans, LA and the National Conference on Undergraduate Research, San Francisco, CA, April 12-14, 2007

Alexithymia translates as “without word for feelings” (Sifneos, 1973). The inability to express emotions can lead to unhealthy coping strategies that include self-injurious behaviors (Paivio & McCulloch, 2004). The current study assessed alexithymia and a variety of self-injurious behaviors in a sample of non-clinical young adults. Participants were 50 men and 63 women. The majority (69%) of participants were Caucasian, 30% were African American, and 1% were of other ethnic backgrounds. The mean age was 20.38 (SD = 2.99). Participants completed the Toronto Alexithymia Scale (TAS-20; Bagby, Parker, & Taylor, 1994). The TAS-20 measured three subscales: Difficulty Identifying Feelings (DIF), Difficulty Describing Feelings (DDF), and Externally Oriented Thinking (EOT), with a higher score representing a greater number of alexithymic symptoms. Participants also received the Harmful Behaviors Questionnaire (HBQ) designed by the researchers to assess the presence and severity of drug use, alcohol use, and self-mutilation. Participants answered questions, modified from the Eating Attitudes Test-26 (EAT-26; Garner & Garfinkel, 1979), about the presence and severity of disordered eating. We found a positive correlation

Hallie Farmer, 2007
Jessica Hudgens, 2007
Christina Jarrard, 2007
Emily Patterson, 2006
Department of Psychology
Faculty Mentor:
Darren R. Ritzer, Ph.D.

between participants' scores on the TAS and their scores on the modified EAT, $r = .44, p < .01$. A positive correlation was found between participants' scores on the TAS and number of self-mutilating behaviors in which they engaged, $r = .33, p < .01$. Similarly, as TAS score increased, the frequency of self-mutilation increased, $r = .33, p < .01$. Results revealed no relationship between participants' TAS scores and drinking patterns or stimulant abuse. However, a negative correlation was found between participants' TAS scores and sedative abuse, $r = -.22, p < .05$, and between TAS score and painkiller abuse, $r = -.22, p < .05$. There were no gender differences on self-injurious behaviors or on the overall TAS score. However, there was a difference between men and women on the TAS subscale of EOT, $t(111) = 3.51, p < .05$, suggesting that men focused more on external factors, rather than internal feelings. These findings indicate that treatment for alexithymia might need to include screening for eating disorders, self-mutilation, and specific patterns of substance abuse.

THE RELATIONSHIP BETWEEN YOUNG ADULTS' MYSTICAL EXPERIENCES AND ATTITUDES TOWARD THE VALUE OF LIFE

Presented at the Southeastern Psychological Association Conference, New Orleans, LA.

Bryan Moore, 2007
Tiffany Mason, 2007
Department of Psychology
Faculty Mentor:
Merry J. Sleight, Ph.D.

Hood (1975) developed the Mysticism scale, comprised of eight subscales, to measure transcendent, blissful, or sacred experiences. The purpose of the current study was to examine whether mystical experiences related to young adults' attitudes about vegetarianism, capital punishment, and the value of life. Participants were 25 men and 60 women. The mean age was 21.76 (SD = 5.36). 53% were Caucasian, 41% were African-American, and 6% were other. Participants completed the M-scale (Hood, 1975), as well as questions relating to vegetarianism (Janda & Trocchia, 2001) and questions related to the death penalty and the value of life. We calculated an M-score for each participant. The possible range was 31 to 155, with a higher score indicating a greater variation in type and extent of mystical experiences. The mean was 106.49 (SD = 11.74). The higher the M-score, the more participants agreed that human life is valuable, $r = .39, p < .01$. The subscales, with the exception of Positive Affective, individually correlated with this belief as well. The higher the Unifying score, the more the participants supported animal rights, $r = .24, p < .05$, the more they agreed that the government should spend money to support animal rights organizations, $r = .31, p < .01$, and the more they believed that animal lives are valuable, $r = .24, p < .05$. Similarly, the higher the Positive Affective score, the more the participants supported animal rights, $r = .26, p < .05$, and the more they believed that animal lives are valuable, $r = .24, p < .05$. The more likely participants were to report that their mystical experiences

were the result of substance use, the more likely they were to agree that animals have emotions, $r = .25, p < .05$. Republicans had a higher Religious score than Democrats, $t(47) = -2.12, p < .05$. The higher the Noetic score, the more participants agreed that capital punishment is an important issue to them, $r = .25, p < .05$. M- and subscale scores did not differ based on gender or race, although attitudes were related to these characteristics.

EFFECT OF EMOTIONAL VERSUS BEHAVIORAL SIDE EFFECTS ON PERCEPTIONS OF ANTIDEPRESSANTS IN MEN AND WOMEN

Presented at the Southeastern Psychological Association Conference, New Orleans, LA

The purpose of this study was to examine how potential side effects influence young adults' perceptions of antidepressant medication. Participants were 39 men and 81 women, with a mean age of 19.89 ($SD = 2.95$). Sixty-nine percent of participants were Caucasian, 25% were African-American, and the remainder represented other races. Participants were asked to read a brief pharmaceutical description of a non-existent antidepressant (called Zylacom). Three versions emphasized no individual side effect, an emotional side effect, or a sexual side effect. The Antidepressant Compliance Questionnaire (ADCQ) was modified to assess participants' beliefs about depression and antidepressant medication (Demyttenaere et al, 2004). Additional questions assessed participants' attitudes toward Zylacom. We calculated a "Positive Attitude Toward Antidepressants" (PATA) score for each participant, with a possible range of 14 to 56. The mean score was 31.65 ($SD=3.78$), indicating a slightly negative attitude. The higher the PATA score, the less likely the participants were to use Zylacom, $r = -.24, p < .01$, and to recommend Zylacom to others, $r = -.27, p < .01$. The higher the PATA score, the more likely participants were to state that they believed the benefits of Zylacom outweighed its risks, $r = .23, p < .05$. The three conditions (emotional side effects, sexual side effects, and control) were compared. Results revealed no significant differences between the groups on perceptions of Zylacom or antidepressants in general. However, the majority of participants in the emotional side effects condition (67.5%) reported "social withdrawal" as their greatest concern. In the sexual side effects condition, "sexual dysfunction" was the most worrisome. The majority of control participants (65.0%) reported a side effect other than emotional or sexual. Men were more likely than women to recommend Zylacom to a friend or family member, $t(118) = 3.37, p < .01$, and to report that antidepressants are not really necessary, $t(117) = 2.22, p < .05$. African-Americans were more likely than Caucasians to report willingness to take Zylacom, $t(111) = -2.07, p < .05$, and simultaneously to report that taking medication for depression should be a last resort, $t(111) =$

Melissa Williams, 2007
Department of Psychology
Faculty Mentor: Merry J.
Sleigh, Ph.D.

-2.28, $p < .05$.

INFLUENCE OF EARLY MUSIC EXPERIENCE ON YOUNG ADULTS' FUTURE PARENTING PLANS

Presented at the Big South Undergraduate Research Symposium, Myrtle Beach, SC, March 23-24, 2007

Elizabeth Williams, 2007
Department of Psychology
Faculty Mentor:
Merry J. Sleight, Ph.D.

Recent research suggests that early music exposure can improve children's cognitive abilities (Schellenberg, 2006) and self-confidence (Costa-Giomi, 2004). The current study examined the influence of music experience on young adults' parenting plans. Participants were 35 men and 73 women who completed a 34-question survey created by the researchers. Results revealed that music majors were more likely to agree than non-music-majors that music should be an important part of their children's lives, $t(106) = 2.32$, $p < .05$ and that it is important that their children take music lessons, $t(106) = 2.71$, $p < .05$. The more instruments played, the more participants wanted music to be an important part of their children's lives, $r = .39$, $p < .01$, and the more they wanted their own children to take music lessons, $r = .39$, $p < .01$. Men were more likely to agree than women that it is important that their children take music lessons, $t(106) = 2.60$, $p < .05$, that music should be an important part of their children's life, $t(106) = 2.04$, $p < .05$, and that they plan to have their children take music lessons even if their children are not interested, $t(106) = 2.24$, $p < .05$. Men were also more likely to agree than women that they would most prefer their children to be involved in music than sports or dance, $t(104) = 3.13$, $p < .05$, and that children with musical training develop higher self-esteem than those who do not have musical training, $t(106) = 2.19$, $p < .05$. The more participants agreed they wanted music to be an important part of their child's life, the less they valued sports participation for their children, $r = -.30$, $p < .01$. The less important sports was perceived, the more participants would be disappointed if their children did not sing or play an instrument, $r = -.30$, $p < .01$, and agreed they plan to have their children take music lessons even if they are not interested, $r = -.20$, $p < .05$. These findings suggest that early musical experience influences young adults' parenting plans.

THE RELATIONSHIP BETWEEN YOUNG ADULTS' RELIGIOSITY AND STRESS LEVELS

Presented at the Southeastern Psychological Association Conference, New Orleans, LA

Ryan Wicklund, 2007
Whitney Simmons, 2008
Department of Psychology
Faculty Mentor:
Merry J. Sleight, Ph.D.

The current study explored relationships among religiosity, stress, and social attitudes. Participants were 68 young adults. The mean age was 20.37 (SD = 4.57). Seventy-one percent were Caucasian, 19% were African-American, and the remainder represented other ethnicities. Participants

completed a three part survey. The first part consisted questions from the Personal Religiosity Inventory (PRI; Fabricatore et al, 2004) and questions created by the researcher to assess participants' beliefs about social topics. The second part was the Perceived Stress Scale (Croghan, 2006). The third part of the questionnaire was demographic questions. We computed a Religion score for each participant based on the PRI. The possible range was 10 to 60, with a higher score indicated a greater reliance on religion. The mean score was 34.89 (SD = 10.59). We also computed a Perceived Stress score (PSS) for each participant. The possible range was 10 through 50, with a higher score indicating fewer stress symptoms. The mean score was 33.35 (SD = 6.59). A Pearson's correlation revealed no correlation between the religion score and the PSS. The more participants agreed that their parents would be pleased with their current behaviors, the higher their PSS, indicating less stress, $r = .31, p < .05$. Results revealed that African-Americans were more likely than Caucasians to agree that they believed in God, $t(58) = -2.05, p < .05$. There were no other significant differences between these two groups. There were no gender differences on PSS; however, women reported a higher religion score than men, $t(55) = -3.09, p < .01$. Women were more likely than men to agree that their religious beliefs influenced their beliefs about euthanasia, $t(57) = -2.54, p < .05$, and about suicide, $t(65) = -2.03, p < .05$. Women were more likely to agree that their personal religious beliefs matched those of their parents, $t(66) = -4.01, p < .01$. We compared people with no job to people who worked a part- or full-time job with an independent t-test. There were no differences on any variable except PSS. Employed participants had higher PSS, indicating less stress, $t(59) = -2.81, p < .01$.

EQUINE FACILITATED THERAPY: UTILIZING RURAL LIFE'S MOST LOVED ANIMAL

Presented at the 31st National Institute on Social Work and Human Services in Rural Areas: Seasons of Rural America: Practice Implications for Geographically Diverse Populations throughout the Life Span, Bowling Green, KY, July 21, 2006

Equine therapy is a unique method of working with individuals. The therapy requires a symbolic intertwining of people and animals. The interaction produces improved health and well-being in everyone involved in the effort. Teamwork is essential in the coordination of therapy. Equine therapy draws upon the person in a natural environment and leaves those involved with the ability to transpose their learning into family and personal relationships. In the field of rural social work, equine therapy has not been extensively addressed; however, many social workers engage in psychotherapy, and the aim of this study is to provide information to those

Jessica A. Baker, 2007
Department of Social Work
Faculty Mentor:
Ameda A. Manetta, Ph.D.

who are interested in learning more about this adjunct method of treatment. This paper will focus on describing the various components of equine assisted therapy. We begin with an introduction to the North American Riding for the Handicapped Association (NARHA, 2006), the governing body of equine therapy. We address the training of the horses, handlers, and therapists, how safety of people is addressed, the different populations who can engage in equine therapy, and the benefits from this therapy. Two specific equine therapy treatment modalities, learning/language disabilities and grief work, will be discussed. A small research project was undertaken to support the use of equine therapy. Lastly, the applicability of equine therapy to social work will be addressed.

THE NUMBER THREE IN THE MERCHANT OF VENICE: THE IMPORTANCE OF THE RING TEST

Presented at the Medieval/Renaissance Conference XX, September 14-16, 2006 at the University of Virginia's College at Wise

Ria Feltman, 2007
Department of English
Faculty Mentor:
Matthew Fike, Ph.D.

In William Shakespeare's *The Merchant of Venice*, Portia is torn between a desire to love Bassanio and a desire to know the truth about his motives. After Bassanio passes her father's test, she still wants to know whether his desire to marry her stems more from his interest in her or from his desire to acquire her fortune. Therefore, she uses the ring test to reveal Bassanio's willingness to sacrifice his marriage to her, which includes her wealth, if necessary. I suggest that Shakespeare provides a foreshadowing of Bassanio's success in the ring test by having him choose the third casket. Since the number three represents reunion and reconciliation in the Pythagorean Theorem and in the Bible, the third casket foreshadows the three-step process of reconciliation: unity, separation, and reunion. First, Bassanio's correct choice of the third casket unifies him and Portia. Next, the new couple is separated by Bassanio's decision to part with Portia's ring—the unity they first experienced is broken. Finally, after Bassanio realizes that Portia was the judge to whom he had given the ring, they are reunited. The number three thus foreshadows both the reconciliation of the couple's relationship and the resolution of Portia's doubt about her future husband.

Kathleen Jocoy, 2008
Casserly Daniels, 2008
Department of Psychology
Faculty Mentor: Cheryl
Fortner-Wood, Ph.D.

THE OF ETHNICITY, POVERTY, AND GENDER IN SOCIAL INHIBITION DURING CHILDHOOD

Presented at the Biennial Meeting of the Society for Research in Child Development, Boston, MA

Data from the NICHD Study of Early Child Care and Youth Development (SECCYD) was analyzed to determine how gender, ethnicity, and poverty

play a role in social inhibition during the preschool years as well as how these effects affect social competence in the school years. Gender and ethnicity both had a significant effect on early social inhibition, but the groups with higher social inhibition switched from 6 to 54 months with African American children being perceived as more socially inhibited as infants and less socially inhibited as preschoolers when compared to their white peers. Because 2/3 of the African Americans in the sample are living below the poverty line we explored the interaction of ethnicity and poverty on social inhibition. We created a subsample of four randomly selected groups (not poor black, poor black, not poor white and poor white) of 50 cases each. African American children classified as “not poor” displayed significantly less social inhibition than poor African American children and poor Caucasian children. Early social inhibition predicted social competence in the fifth grade. The gender, ethnicity, and poverty links continued to affect children’s social skills into the school years.

WHAT EXPLAINS MORALITY IN COLLEGE STUDENTS?

Presented at the Big South Undergraduate Research Symposium, Myrtle Beach, SC, March 23-24, 2007

Previous research has demonstrated that many variables can influence decision-making, including family cohesion and personality beliefs (Erdly & Dweck, 1993; White, Howie, & Perz, 2000). The purpose of the current study was to investigate sources of influence on moral judgment particularly, whether or not beliefs about personality influence moral decision making. Participants were 107 young adults, with a mean age of 19.48 (SD = 2.30). Beliefs about personality were assessed using the ‘Implicit Personality Theory Questionnaire’ (Erdly & Dweck, 1993). A lower score indicated incremental beliefs and a higher score indicated entity beliefs. “Incremental” reflects the belief that personality changes depending on the situation, whereas “entity” reflects a person’s beliefs that personality is unchanging. We used the Defining Issues Test (DIT-2; Rest, 1999) to assess moral decision making. We expected entity theorists (participants) would have higher DIT-2 scores than incremental theorists, but found the opposite. We also found ethnic, but not gender, differences in DIT-2 scores.

ELECTROCHEMICAL PROPERTIES OF COBALT AND ALUMINUM DOPED LITHIUM MANGANESE OXIDE SPINEL CATHODE MATERIALS
Presented at the 233rd American Chemical Society National Meeting, Chicago, IL, March 26, 2007

The LiMn₂O₄ spinel is one of the most promising cathode materials for

Mary Ward, December 2006
Department of Psychology
Faculty Mentor:
Cheryl Fortner-Wood, Ph.D.

Jonathan Hall Slade Jr., 2007
Department of Chemistry,
Physics, and Geology
Faculty Mentor:
Lennart Kullberg, Ph.D.

rechargeable lithium ion batteries because of its low cost, low toxicity, and high energy density. Recent studies have focused on the problem with capacity fading of this material upon cycling. The substitution of manganese ions for other metal ions has been shown to improve cycling stability. Cations such as Ni²⁺ and Cu²⁺ have been shown to be effective. Unfortunately, doping with low valent cations decreases the capacity due to a decrease in the amount of Mn³⁺ in the spinel. In the present study we prepared cobalt and aluminum doped materials of composition Li_{1+x}Co_{2-x}Al_xMn_{2-4x}O₄ (0.01 ≤ x ≤ 0.05) and studied their electrochemical properties.

CLONING, EXPRESSION AND PURIFICATION OF HUMAN ADIPONECTIN RECEPTOR ADIPOR2

Presented at the American Chemical Society, March 25, 2007

Zainab Ghadiyali, 2008
Department of Chemistry,
Physics, and Geology
Faculty Mentor:
Chasta L. Parker, Ph.D.

Metabolic syndrome, a set of health problems that includes diabetes, obesity, and risk of heart failure, affects one in every five Americans. Adiponectin, a 30-kDa complement related adipokine is closely related to metabolic syndrome in that high circulating levels appear to be protective. AdipoR2, a recently discovered membrane receptor binds to adiponectin to mediate AMP kinase activity, regulate fatty acid oxidation and glucose uptake. The goal of this project is to produce and purify a recombinant form of AdipoR2 in insect cells for structural and ligand binding analysis. AdipoR2 has seven trans-membrane domains and yet is structurally and functionally distinct from G-coupled protein receptors. Experiments describing cloning, expression and functional purification of AdipoR2 will be presented. Understanding the binding of adiponectin to the receptor could lead to the introduction of novel treatment methods. This work was supported by the SC-INBRE NIH grant, the Winthrop University Research Council and the department of chemistry.

Shannon Kissinger, 2007
Lavonda Walker, graduated
2005
Department of Chemistry,
Physics, and Geology
Faculty Mentors:
Chasta L. Parker, Ph.D.,
Jason Hurlburt, Ph.D., and
Kimberly McKinney

EXPRESSION OF ADIPONECTIN MEMBRANE RECEPTOR 1 IN Sf9 CELLS

Presented at the American Chemical Society March 25, 2007, and the National Conference on Undergraduate Research, San Francisco, CA, April 12-14, 2007

AdipoR1 is a Human transmembrane receptor expressed mostly in skeletal muscle. Both the receptor and its ligand (adiponectin) are important in the regulation of glucose and therefore have been implicated in Diabetes Type II, Obesity, and Atherosclerosis. The goal of this project was to produce large quantities of purified AdipoR1 in Sf9 insect cells. Once purified to homogeneity, the protein can be used for structural analysis by X-ray

crystallography and can also be used in biochemical assays to assess its function. After verifying that Sf9 insect cells did not produce AdipoR1 endogenously, the cells were used to produce the protein. The AdipoR1 protein was extracted and its expression verified by Western blotting. Results indicate successful transfection and extraction of AdipoR1. Work is currently being done to produce a purified protein and to characterize the functionality of this protein using assays that assess the binding of the receptor to adiponectin. This work was supported by the Winthrop University Research Council, the Department of Chemistry and an SC-INBRE grant.

KINETIC CHARACTERIZATION OF ARYLAMINE N-ACETYLTRANSFERASE 2 USING THE SUBSTRATES SULFAMETHAZINE AND PARA-NITROANILINE

Presented at the American Chemical Society, March 25, 2007, and the National Conference on Undergraduate Research, San Francisco, CA, April 12-14, 2007

Arylamine N-acetyltransferase 2 (NAT2) is an enzyme responsible for the transfer of an acetyl group from Acetyl Coenzyme A to a free nitrogen atom on an arylamine substrate. The rate of this acetylation can be categorized as fast, slow or average. Fast and slow acetylation have been linked to various forms of cancer including breast, prostate and bladder cancer. In order to adapt an assay to study NAT 2 kinetics, two colorimetric detection methods and several sources of NAT2 were used. The detection methods employed for this study utilized 4-Dimethylamino Benzaldehyde and 5,5'-Dithiobis-2-nitrobenzoic acid (Ellman's reagent). The former relied on the formation of a Schiff's base and the latter on the formation of CoAsh. Along with commercially available pigeon liver NAT2, human NAT 2 expressed in both Sf9 insect cells and in E. coli cells have been tested. The methods and results of these assays will be presented. This work was supported by the Winthrop University Research Council, the Department of Chemistry and an SC-INBRE grant.

EXPRESSION AND PURIFICATION OF HUMAN ARYLAMINE N-ACETYLTRANSFERASE 2

Presented at the American Chemical Society March 25, 2007

Arylamine N-acetyltransferase (NAT) is an enzyme that catalyzes the acetylation of harmful arylamines. There are two NAT isoenzymes, NAT1 and NAT2. NAT1 is found in most tissues and generates phenotypic variations in terms of catalytic activity. NAT2 is found in the hepatic system and contains polymorphisms that alter acetylation rates. The

Rachel Glazener, 2007
Inesha Baker, 2008
Department of Chemistry,
Physics, and Geology
Faculty Mentors:
Chasta L. Parker, Ph.D. and
Jason Hurlburt, Ph.D.

Inesha Baker, 2008
Department of Chemistry,
Physics, and Geology
Faculty Mentors:
Chasta L Parker, Ph.D. and
Jason Hurlbert, Ph.D.

altered rates are characterized as either fast or slow; both of which can lead to cancer. In order to adopt a kinetic assay for experimental use, human NAT2 was subcloned and over expressed in bacterial cells. NAT2 was amplified from pENTR 221 using PCR with primers containing NdeI and XhoI restriction sites. The PCR product was ligated into shuttle vector Blunt II TOPO and then subcloned into both pET20b(+) and pET28b. The cDNA and plasmid integrity were verified by sequencing and the vector transformed into E. coli BL21 (DE3) and TOP 10 (Invitrogen) cells. After transformation, NAT2 was expressed in both BL21 (DE3) and Rosetta bacterial cells. Culture and IPTG induction conditions were determined and protein isolated from the cells. Because the vectors contained a 6x His-tag, the expressed protein was purified using a nickel-column and analyzed using SDS-PAGE and Western blotting. Protein expression was confirmed and typical yields using these conditions were found to be approximately 0.8mg/mL. Future studies are aimed at developing an enzyme kinetic assay for analysis of potential NAT2 inhibitors. This work was supported by the SC-INBRE grant, the Winthrop University Research Council and the Department of Chemistry.

YOUNG ADULTS' PERCEPTIONS OF AGING AND TECHNOLOGY TO EXTEND THE HUMAN LIFESPAN

Presented at the Southeastern Psychological Association Conference, New Orleans, LA

Mike Goldberg, 2007
Lindsey Stewart, 2007
Ashley Felker, 2007
John Thompson, 2007
Department of Psychology
Faculty Mentor:
Merry J. Sleight, Ph.D.

This study examined young adults' perceptions of advances in life-extending technology. Thirty men and 106 women completed a 51-question survey designed by the researchers. We computed a Desire for Longevity (DFL) score for each participant, with a possible range of 9 to 36. The mean score was 17.81 (SD = 3.77). When asked about options to extend their lifespan, most participants (77.2%) reported being horrified or disturbed. We computed a Positive Impact of Longevity (PIL) score, with a possible range of 6 to 24. A higher score indicated a more positive perception of how increased lifespan would impact the world. The mean score was 13.68 (SD = 2.72). The higher the DFL score, the higher the PIL score, $r = .21$, $p < .05$. Participants who had taken classes focused on aging provided a higher age for the age at which people should stop working, $t(134) = 3.43$, $p < .01$, were more likely to agree that taxpayer money should be used to discover ways to extend the lifespan, $t(134) = 2.36$, $p < .05$, and were concerned that they would not receive the benefits of future technology, $t(134) = 2.14$, $p < .05$. Women were more willing to reduce their caloric intake to 900 calories/day in order to extend their lifespan, $t(134) = -2.28$, $p < .05$. Men were more willing to have their body parts replaced with robotic parts, $t(134) = 2.58$, $p < .05$. Caucasians reported knowing more about scientific advances to

extend the lifespan than did African-Americans, $t(130) = 2.29, p < .05$. Caucasians were more likely to agree that life would get boring, $t(130) = 2.84, p < .01$, and physically uncomfortable, $t(130) = 3.14, p < .01$, after the age of 125. African-Americans reported a higher PIL score, $t(128) = -3.52, p < .01$. People who had not lost a loved one were more likely to agree that they would like to live forever, $t(134) = -2.19, p < .05$, and were more willing to be frozen while still alive, $t(134) = -1.98, p < .05$. Age and experience can influence attitudes toward aging.

PHYSICAL COURAGE, MORAL COURAGE, AND PROSOCIAL ACTIONS:
RELATIONSHIP OF EMOTION AND APPEARANCE OF EMOTIONS
Presented at the Conference on Applied Psychology at the Clemson
University Madren Center

The present study explored the distinction of personal and general courage. We also examined the emotions involved in the experience of a courageous situation and analyzed the relationship between negative emotions and different types of courage (physical, and moral). Prosocial, defined as doing something nice for someone, functioned as a control since it is not necessarily courageous. This study also aimed to investigate the relationship between fear, confidence, or courage experienced and participants' perception of how fearful, confident, or courageous they would have appeared to an observer. One hundred fifty-seven participants anonymously completed a survey on a website. We used Pearson's correlations to examine each emotion and its relationship to participants' perception of the appearance of that emotion. Each type of courage yielded positive relationships for time that fear, courage, or confidence was experienced, and participants' perception. Results for feelings of courage indicated that there was no interaction of type of action and time, $F(4, 612) = 1.5500, n.s.$ There was no main effect for type of action. Physical, and moral courage and prosocial actions did not differ significantly, $F(2, 306) = .3364, n.s.$ However, there was a main effect for time, $F(2, 306) = 77.7836, p < .05$. There was a small trend in increased amount of courage experienced over time. There was no interaction of type and time for feelings of confidence, $F(4, 604) = 2.0440, n.s.$ There was no main effect for type of action, $F(2, 302) = 0.4502, n.s.$ There was a main effect for time, $F(2, 302) = 34.9833, p < .05$. Conversely, the results for fear indicated an interaction of time and type of courage, $F(4, 604) = 6.1900, p < .05$. There was a main effect for time, $F(2, 302) = 129.6572, p < .05$. There was also a main effect for type of action, $F(2, 302) = 79.2334, p < .05$. We found that there is a relationship between how someone feels and how they perceive an audience would describe their

Trekeelia Brisbon, 2007
Department of Psychology
Faculty Sponsor:
Merry J. Sleight, Ph.D.,
Faculty Mentor:
Cindy Pury, Ph.D.
(Clemson University)

emotions. Generally, courage and confidence experienced increased over time. Fear did not differentiate between the two types of actions that were courageous. However, fear did differentiate between the courageous actions and the prosocial action.

LOVE MEANS MARRIAGE SETTLEMENTS: FEMALE CONNECTION IN HOWARDS END

Presented at the Sixth Annual Conference of the English Graduate Student Association, University of North Carolina, Charlotte, January 26, 2006

Allison Wise, 2006
Department of English
Faculty Mentor:
Gloria Jones, Ph.D.

Several critics have argued that E.M. Forster displaces his desire for homosexual male love onto his female protagonists, and that the relationships that these characters form with other females are charged with homoerotic desire. Alistair Duckworth specifically suggests a lesbian relationship between Helen and her Italian housemate Monica in *Howards End*. However, a closer examination of the female connections in *Howards End* and the culture from which they emerge leads to a different conclusion. In these relationships, Forster is portraying what was known at the time as “romantic friendships,” and their subset, the “Boston Marriage.” While he depicts an important aspect of early twentieth century English culture, Forster also provides an interesting social commentary. These female alliances were accepted and encouraged by English society, yet it was these very alliances that provided women the support that enabled them to stand up against the patriarchy. Edwardian England saw the rise of the feminist movement, which was based upon collective resistance—women drawing strength off one another and banding together to push for social change. The suffragettes marched in groups thousands strong. Romantic friendships and Boston Marriages were a small-scale way for women to be a part of this broader movement. Through these relationships, women were able to seek a life for themselves outside of marriage and family, and to draw support from other females while working for social and legal reform. Thus by accepting these female connections the patriarchal culture of Edwardian England unconsciously encouraged its own dismantling.

“THE MIGHTY MOTHER”: UNIVERSAL REVERSALS IN THE DUNCIAD

Presented at the Winthrop Literary Society and English Department Undergraduate and Graduate English Conference, April 1, 2006

Allison Wise, 2006
Department of English
Faculty Mentor:
Jack DeRochi, Ph.D.

Alexander Pope places Dulness, a female, and hence in Lacan’s understanding, a lack, at the center of the deconstructed universe in *The Dunciad*. While in Lacan’s system everyone is trying to unite with the Phallus, a male construct where there is no emptiness or absence, Pope sets up a cultural system based on negation, where everything is characterized

by nothingness and is returning to nothingness and the Center itself is the personification of lack. By making Dulness a female and lack, Pope demonstrates the impact that negativity has had on the artistic and intellectual climate of his day. Although Dulness, because of her gender, may be seen as a source and thus connected with the proliferation of bad cultural productions, I argue that Dulness does not create or propagate, but rather negates, resulting in an ever-contracting artistic universe in which creation has been reversed, and at the end of the poem, a totally deconstructed world. In Lacan's model fullness and unity are not possible after infancy—the person enters the realm of language and spends the rest of his life trying to arrive at a place of no absence and never succeeding. But in Pope's world of lacks, the inhabitants find a kind of fullness in their utter negation, and come closer to a unity with the center of their system than any of the members of Lacan's less absent world.

“‘TIS A GOOD DULLNESS“: ALCOHOL AND COLONIALISM IN
THE TEMPEST

Presented at the Medieval-Renaissance Conference XIX, University of
Virginia at Wise, September 15-17, 2005

In 1964, Leo Marx called *The Tempest* a “prologue to American literature,” reflecting the shift that had occurred over the course of the twentieth century toward reading *The Tempest* for its New World affinities. In the preceding three centuries, Caliban, for instance, had been interpreted as nearly everything but an Indian, according to Alden Vaughan, but in 1898 was identified for the first time as a depiction of an American Indian by the scholar Sidney Lee. Since then Caliban has garnered a great deal of literary/historical attention for the light he sheds on Elizabethan notions of the Americas and for his (and indeed the whole play's) reflection and/or prefiguration of events in American history. One important connection between *The Tempest* and American history that has been overlooked is the role of alcohol. This study proposes that Stephano and Trinculo's purveyance of alcohol to Caliban acts both as exploitation by, and initiation into, European culture, in a way comparable to the European colonists' rum trade with Native Americans from the late seventeenth century through the eighteenth century. In both Shakespeare's play and American history, this experience proved not only enslaving to the native but also unexpectedly detrimental to the colonists themselves when the inebriated natives revolted against colonial domination. My paper first examines the importance of alcohol to European society and then seeks to demonstrate how Stephano and Trinculo's introduction of alcohol to Caliban is a more

Allison Wise, 2006
Department of English
Faculty Mentor:
Matthew Fike, Ph.D.

effective form of cultural colonization than Prospero and Miranda's more serious colonizing attempts. But while Caliban appears to be successfully "colonized" by the drunken courtiers, it is the drink that they give him that empowers him to rise up against his first white oppressor, Prospero.

POLITICAL CONSERVATISM PREDICTS ECOLOGICAL ATTITUDES:
SOCIALLY MOTIVATED COGNITION AND THE ISSUES OF GLOBAL
WARMING AND SPECIES EXTINCTION

Presented at the Big South Undergraduate Research Symposium, Myrtle Beach, SC, March 23-24, 2007

Awarded the All-Conference Research Team designation by the Big South Conference

Brooke Walters, 2008
Brian Nunnally, 2007
Department of Psychology
Faculty Mentor:
Jeff Sinn, Ph.D.

Previous research has examined political conservatism as a product of motivated social cognition. Evidence suggests epistemic and existential needs, as well as ideological rationalizations, may lead people to adopt particular conservative positions such as aversion to change and endorsement of inequality (Jost et al., 2003). This study extends previous research by exploring related constructs as predictors of concern about global warming and species extinction. We hypothesized that the following would correlate negatively with such concerns: System Justification (endorsement of current sociopolitical hierarchy), Social Dominance Orientation (believing some groups are superior to others), Right-Wing Authoritarianism (submission to authorities, aggressiveness towards certain groups, and adherence to social conventions), and the Order subscale of Need for Closure (desire for clear and structured life). We further hypothesized that the Big Five personality factor of Openness (attraction to the arts, ideas, and imaginative pursuits) would correlate positively. Hypotheses were tested at $p < .05$ with 160 subjects. Global warming concern correlated significantly at this level with System Justification ($r = -.192$) and Social Dominance Orientation ($r = -.179$). Hypotheses were also tested at $p < .01$. Global warming concern correlated significantly at this level with Religiosity ($r = -.272$), Evolution ($r = .362$), Right-Wing Authoritarianism ($r = -.268$), Openness ($r = .330$), and Absorption ($r = .204$). Species extinction concern correlated at the $p < .05$ level with Social Dominance Orientation ($r = -.188$). At the $p < .01$ level, species extinction concern significantly correlated with Religiosity ($r = -.277$), Evolution ($r = .426$), Right-Wing Authoritarianism ($r = -.272$), Openness ($r = .340$), and Absorption ($r = .377$). These results suggest that attitudes about crucial environmental issues may depend more on psychology of the person than the quality of the evidence provided.

THE BIG FIVE PERSONALITY TRAITS AND YOUNG ADULTS' PERCEPTIONS OF WORKPLACE ROMANCE

Presented at the Southeastern Psychological Association Conference, New Orleans, LA, Feb 21-24, 2007

We examined young adults' perceptions of workplace romance. Sixty participants were given the Mini IPIP (Donnellan et al, 2006), as well as questions related to office romance. Results revealed that higher extraversion scores were positively correlated with agreement that office romance improves teamwork and cooperation, $r = .28$, $p < .05$, prior attraction to a co-worker, $r = .31$, $p < .05$, and feeling comfortable about dating co-workers, $r = .39$, $p < .01$. Extraversion was negatively correlated with being offended by being asked out by a co-worker, $r = -.34$, $p < .01$. The higher the extraversion scores, the less participants reported actually being in an office romance, $r = -.27$, $p < .05$, suggesting either a disconnect between attitudes and behavior or an absence of opportunity for office romance. Conscientiousness was negatively correlated with the notions that office romance improves teamwork and cooperation, $r = -.30$, $p < .05$, and enhances creativity and innovation, $r = -.28$, $p < .05$. For men, conscientiousness was positively correlated with agreement that romance is acceptable for equal level workers, $r = .54$, $p < .05$, and that there should be strict policies against office romance, $r = .54$, $p < .05$. Agreeableness in men was positively correlated with the belief that office romance is more appropriate for blue collar than white collar, $r = .66$, $p < .01$. Higher neuroticism men were more offended if approached for romance by a co-worker, $r = .52$, $p < .05$. For women, neuroticism was positively correlated with the belief that office romance is unavoidable, $r = .31$, $p < .05$, and extraversion was positively correlated with the belief that office romance improves teamwork and cooperation, $r = .37$, $p < .05$. Extraversion was positively correlated with previous attraction to a co-worker, $r = .33$, $p < .05$, and comfort with dating a co-worker, $r = .42$, $p < .01$. For women, conscientiousness was negatively correlated with the belief that office romance enhances creativity and innovation, $r = -.36$, $p < .05$. Gender and personality traits may interact to influence attitudes and behavior related to workplace romance.

INTERGENERATIONAL MOBILITY AND THE AMERICAN DREAM

Presented at the Southern Sociological Society, Atlanta, April 14, 2007

This paper examines the influence of social class origins on intergenerational mobility and social class destinations. Using data from the General Social Survey, I compared the socioeconomic status of

Brooke Walters, 2008
Ame Woods, 2008
Department of
Psychology
Faculty Mentor:
Merry J. Sleight, Ph.D.

Justin L. Cohen, 2007
Department of Sociology
and Anthropology
Faculty Mentor:
Douglas Eckberg, Ph.D.

respondents and their parents through tables and multiple regression analysis. Income, educational attainment, and occupational prestige are used as indicators of social class, and the results imply a high degree of social fluidity in the United States.

ARGININES AT POSITIONS 59 AND 81 ARE NOT REQUIRED FOR HMGA1A-MEDIATED NEOPLASTIC TRANSFORMATION

Presented at the Big South Undergraduate Research Symposium, Myrtle Beach, SC, March 23-24, 2007

Kelly E. Pace, 2008
Department of
Chemistry, Physics, and
Geology
Faculty Mentor: Takita
Felder Sumter, Ph.D.

High Mobility Group A 1 (HMGA1) proteins are a family of non-histone chromosome binding proteins involved in a variety of cellular processes including transcription, replication, retroviral integration, DNA repair, and cancer. Due to their overexpression in various cancers, HMGA1 proteins are being studied as possible diagnostic markers for cancer. HMGA1 proteins contain three AT hook binding domains that are highly conserved among the protein family. Each of these domains includes an arginine (at residues 25 within AT hook I, 59 within AT hook II, and 81 within AT hook III) that is only methylated in malignant cells. We believe that the addition of these methyl groups to the three arginines found in the AT hook DNA binding domains facilitate DNA binding and therefore enhance the ability of HMGA1 to transform normal cells to their cancerous state. To study the role that arginine methylation plays in HMGA1a-mediated DNA binding and in transformation, we constructed recombinant proteins containing one (HMGA1a 1-54) or two AT hooks (HMGA1a 1-64) and tested them in soft agar transformation assays. Plasmids expressing HMGA1a 1-54 and 1-64, were stably transfected into normal Rat1a cells and their expression confirmed by western blotting. Rat1a cells treated with a tumor promoting chemical, TPA, were the most efficient at undergoing transformation followed by the HMGA1a 1-54 and HMGA1a 1-64. We have therefore concluded that removing arginines 59 (using HMGA1a 1-54) and 81 (using HMGA1a 1-64) does not impair transforming ability of the HMGA1a. This data indicates that Arg 25 is important for transformation. Future studies will investigate the DNA binding abilities of HMGA1a 1-54 and 1-64 and elucidate role of Arg 25 in transformation and DNA binding. Identifying the important domains and amino acids of HMGA1a that are required for transformation may lead to the discovery of new targets for more effective cancer therapies.

OPTIMIZATION OF THE SELECTIVE REDUCTION OF α,β -EPOXYCARBONYLS WITH SILYLLITHIUM REAGENTS

Presented at the 232nd National Meeting of the American Chemical Society, San Francisco, CA, September 10-14, 2006 and the National Conference on Undergraduate Research, San Francisco, CA, April 12-14, 2007

A novel selective α,β -reduction of α,β -epoxycarbonyls using silyllithium reagents has been developed. The reaction proceeds through concomitant 1,2-Brook rearrangement and epoxide ring opening to form a silyl enol ether intermediate which is desilylated by excess silyllithium to produce synthetically useful α,β -hydroxycarbonyls (aldols) upon workup. The conditions for the reaction were optimized using 2,3-epoxy-1-phenyl-1-propanone, which was prepared from the epoxidation of 1-phenyl-2-propen-1-ol with meta-chloroperoxybenzoic acid (mCPBA) and subsequent oxidation with tetrapropylammonium perruthenate (TPAP) and N-methylmorpholine oxide (NMO). This substrate was reacted with a variety of silyllithium reagents at various temperatures and in various solvents and analyzed by ^1H NMR to determine the effect of each variable on the efficiency of the reaction. Temperature was seen to have minimal effect; however the solvent and the number of phenyl substituents on the silicon of the silyllithium reagent each had significant influence on the reaction yield.

SELECTIVE α,β -REDUCTION OF α,β -EPOXYCARBONYLS WITH SILYLLITHIUM REAGENTS

Presented at the 232nd National Meeting of the American Chemical Society, San Francisco, CA, September 10-14, 2006

The selective α,β -reduction of α,β -epoxycarbonyls to the corresponding α,β -hydroxycarbonyls was explored using silyllithium reagents. The proposed mechanism for the reaction involves a nucleophilic attack by the silicon atom on the carbonyl of the substrate, followed by a Brook rearrangement and concomitant epoxide ring opening. The resulting silicon-oxygen bond is then cleaved by a second equivalent of the silyllithium reagent to afford the α,β -hydroxycarbonyl product. A variety of differentially substituted α,β -epoxycarbonyls were synthesized from allylic alcohols via epoxidation with meta-chloroperoxybenzoic acid (mCPBA) and subsequent oxidation with tetrapropylammonium perruthenate (TPAP) and N-methylmorpholine oxide (NMO) or from α,β -unsaturated ketones via epoxidation with hydrogen peroxide. These substrates were each treated with excess silyllithium reagent and analyzed by ^1H NMR in order to determine the synthetic

Sarah Wengryniuk, 2007
Department of
Chemistry, Physics, and
Geology
Faculty Mentor:
Aaron M. Hartel, Ph.D.

Samantha Reynolds, 2007
Department of
Chemistry, Physics, and
Geology
Faculty Mentor:
Aaron M. Hartel, Ph.D.

utility of the reaction.

ZINC-INDUCED FOLDING IN ALZHEIMER'S AMYLOID-BETA PEPTIDE
Presented at the Big South Undergraduate Research Symposium, Myrtle
Beach, SC, March 23-24, 2007

Kyle Dukes, 2008,
Shakena Daniel, 2006
Department of
Chemistry, Physics, and
Geology
Faculty Mentor:
Robin Lammi, Ph.D.

Binding of Zn(II) is known to cause aggregation of soluble amyloid-beta peptide (Abeta), and is a likely first step toward formation of senile plaques in Alzheimer's disease. Investigation of metal-induced conformational change in soluble, monomeric Abeta should therefore help to elucidate the earliest events in the plaque-formation cascade. We have studied folding of DABCYL-Abeta(11-22)-EDANS, a dually dye-labeled peptide containing the KLVFF sequence important for Abeta-Abeta association. Fluorescence resonance energy transfer (FRET) measurements in dilute solution at pH 7.4 give an average N-to-C-terminal distance of 24 Angstroms; in DMSO, the average distance determined is 38 Angstroms. Addition of one equivalent of Zn(II) results in a small, 1-4 Angstrom decrease for peptide in both solvents. Time-resolved FRET measurements reveal two primary conformational subpopulations contributing to the average in both environments: a collapsed conformation that is more prevalent in buffer, and an extended conformation more common in DMSO, both of which are somewhat more self-folded upon zinc coordination. Results of circular dichroism studies suggest that these are collapsed and extended random-coil conformations with no apparent secondary structure. Fluorescence and CD data are also confirmed by molecular mechanics calculations, which give an extended equilibrium geometry with a calculated N-to-C-terminal distance of 42 Angstroms, the same as the experimentally determined distance for the extended component in DMSO. Modeling results also show a small decrease in distance upon Zn(II) coordination to His-13, His-14 and Glu-11, in agreement with FRET data. Together, these results illustrate that Abeta(11-22) adopts multiple random-coil conformations with varying degrees of intra-peptide self-association and undergoes localized folding near the N-terminus in response to zinc coordination.

AN ANIONIC, WATER-SOLUBLE POLYMER AS A FLUORESCENT
SENSOR

Presented at the Big South Undergraduate Research Symposium, Myrtle
Beach, SC, March 23-24, 2007

Joseph Goodwin, 2007
Department of
Chemistry, Physics, and
Geology
Faculty Mentor:
Robin Lammi, Ph.D.

Anionic conjugated polymers are promising cation sensors, offering bright fluorescence and superior fluorescence-quenching response upon analyte binding, due to highly efficient intramolecular energy transfer along the polymer chain. We have investigated the sensing capability of an anionic polythiophene, poly[2-(3-thienyl)ethoxy-4-butylsulfonate] (Mw = 1,000,000

g/mol), in aqueous solution, using methyl viologen dication as a quencher. A detection limit of 5.0×10^{-8} M methyl viologen was determined for dilute polymer solutions. In studies with added SSC buffer, increasing buffer-ion concentration resulted in decreased quenching efficiency, suggesting a static quenching mechanism involving ground-state polymer-ion complexation. Results of quenching measurements in ethylene glycol support this assertion: the viscous solvent had no deleterious effect on measured polymer sensitivity for cation, as would be expected if quenching occurred via a collisional mechanism. Stern-Volmer kinetic analysis of data in both solvents yielded a K_{sv} value (a measure of sensitivity) of 7×10^5 l/M, similar to the published value for a related polythiophene. Unfortunately, poor polymer solubility limited sensitivity. Three cationic surfactants were tested for their ability to break up polymer aggregates. Of these, CTAB (cetyltrimethylammonium bromide) showed the most promise, giving up to an 11-fold increase in polythiophene fluorescence intensity and a narrowed, blue-shifted polymer absorption spectrum, consistent with decreased polymer aggregation. Maximal fluorescence intensity was recorded for CTAB concentrations nearing the critical micelle concentration, suggesting that polymer molecules are effectively segregated in surfactant micelles, unable to aggregate. At moderate surfactant concentrations, polymer-CTAB solutions showed strong quenching response to methyl viologen, with sensitivities similar to those of surfactant-free samples, indicating that polymer-surfactant complexation increases polymer fluorescence while only slightly decreasing polymer availability to quencher.

A NOVEL METHOD AND CELL LINE FOR INVESTIGATING ENDOTHELIAL MICROTUBULE FORMATION IN VITRO

Presented at the Southern Regional Honors Conference, Charlotte, NC, March 29-31, 2007 and the Beta Beta Beta Biological Honor Society Regional Conference, Columbia, SC, April 2007.

Cancer develops due to the uncontrolled proliferation of normal cells. In order for a mass of tumor cells to expand, it must recruit new blood vessel growth into the area, a process called angiogenesis. Angiogenesis supplies the growing tumor the oxygen and nutrients needed for continued growth and a route for metastasis. One of the most common in vitro assays used to investigate angiogenesis is the Matrigel™ microtubule formation assay. Endothelial cells (EC) form blood vessel networks when grown in Matrigel™. Although this assay has been an excellent tool for qualitative studies of vessel formation, no reliable quantitative method to calculate the number of microtubules formed exists. In addition, only one endothelial cell line, HUVEC, is currently used for in Matrigel™ studies. We established a quantitative method for determining the microtubule density

Amanda Clark, 2008
Department of Biology
Faculty Mentor:
Laura Glasscock, Ph.D.

of HUVECs and a second endothelial cell line, EAhy129. After incubation of the EC in Matrigel™ for 18 hours in a 12 well plate, five photos per well were taken using an inverted light microscope. Stereology was then used to determine the surface area covered by microtubules. Using the program, ImageJ, the photos were resized to 1760x1640 pixels and overlaid with a 4800-pixel grid (600 vertices). The number of hits, defined as a point where one of the grid's vertices crossed a microtubule, was determined (Cell Counter plugin). The mean number of hits for each of the five views per well was determined and divided by the number of vertices per well to give the surface area of each well covered by microtubules. We established that this stereological method of determining microtubule formation is more quantitative and reproducible than other current methods. We also determined that EAhy129s established microtubules in vitro as well as HUVECs, providing us with an additional source of endothelial cells for research on the process of angiogenesis.

HOST-PATHOGEN COEVOLUTION OF HANTAVIRUSES

Presented to the Biology Department, September 20, 2006

2nd Place Winner of the Houk Undergraduate Research in Biology Award for Fall 2006

Jessica N. Cooke, 2008
Department of Biology
Faculty Mentor:
Kristi M. Westover, Ph.D.

Hantaviruses, members of the virus family Bunyaviridae, are linear, enveloped, negative-sense RNA viruses composed of three segments, the large (L) coding for the polymerase protein, the medium (M) coding for two glycoproteins, and the small (S) which codes for the nucleocapsid protein. Hantaviruses are carried and spread by rodents, most commonly mice. Humans that come into contact with airborne excreta from infected rodents can contract hantaviruses, 70% of which are disease-causing in humans. Hantavirus infections can result in hemorrhagic fever with renal syndrome (HFRS) or hantavirus pulmonary syndrome (HPS). HFRS is caused by Dobrava, Hantaan, Puumala, and Seoul viruses, which are found worldwide. HPS is caused by Andes, Bayou, El Moro Canyon, Laguna Negra, and Sin Nombre viruses. HPS occurs in the United States and several Central and South American countries. Nucleotide sequences for viruses with complete M segments (51) were collected from GenBank on NCBI website. We also collected S segment sequences from 12 complete hantavirus genomes for analysis of antigenic regions. Aligned amino acids were used to generate phylogenies using neighbor-joining (NJ), maximum parsimony (MP), minimum evolution (ME), and maximum likelihood (ML) methods. Reliability of branches was tested using 1000 bootstrap replicates. Synonymous (pS) and nonsynonymous (pN) rates of nucleotide substitution were computed using Nei and Gojobori's uncorrected method within species and virulence categories as well as for antigenic regions

of the S segment. Phylogenetic results indicated placement of US strains near the most deadly HPS and that in general virulence groups were found together in clades. Estimates of pS and pN substitution rates within and between different Hantaviruses showed negative selection, indicating no evidence of viral escape (pS > pN) for M segments, complete genomes, or separate antigenic regions within S segment. Mean pS values were greatest in Puumala and lowest in Sin Nombre, still being defined.

SO CALLED RELIGIOUS EXPERIENCE THROUGH THE SACRED AND THE PROFANE

Presented at the National Conference on Undergraduate Research, San Francisco, CA, April 12-14, 2007

The study of spiritual experiences has been fixed in the research fields held by theologians and religious scholars and debunked by several atheist thinkers. Often moving, spiritual experiences pass unmarked by scholars and people in general if the experience is not somehow related to religion or a god. However, I argue that experiences of this nature are not limited to religions, god or theists of any kind. Moreover, spiritual experiences can occur for atheists without religious justification or accusations of delusional lapses in reason. These experiences need not come from a religious or sacred source. Indeed, powerfully moving moments, which have been coined over the years as religious experiences, spring out of profane objects and ideas just as some originate from sacred objects and ideas. I will demonstrate how moving experiences channel through both the sacred and the profane, and I will draw on scholars' works and personal experiences to show how not only religious books and rituals lead a person to a religious experience but also how profane films, music and other simple activities lead a person to a similar experience. Thus, I will finally claim that so called religious experiences should be understood as a human phenomenon and not only as research for theologians and religious scholars nor as fallacious feelings debunked by atheists.

RELIGIOUS HATE CRIME IN AMERICA

Presented at the National Conference on Undergraduate Research, San Francisco, CA, April 12-14, 2007

Since the terrorist attacks on September 11, 2001, there has been a renewed focus on minority religions in America, particularly Islam, which has dramatically increased the number of religious hate crimes reported in the United States. The object of this paper is to analyze recent trends in religious hate crimes in the United States and to examine the effects that the September 11th attacks had on this data. Among the most notable changes,

Caitlin V. Cihak, 2007
Department of Sociology
Faculty Mentor:
Brad Tripp, Ph.D.

John 'Heath' Whatley
May 2007
Department of
Philosophy and Religious
Studies
Faculty Mentor:
David Meeler, Ph.D.

hate crimes against Muslims increased from only 28 in 2000 to 481 in 2001, a 1,600% raise. Durkheim's theory of anomie can help explain why some reacted in such a violent way towards Muslims. The United States had never experienced such a dramatic act of terrorism before September 11th. As such, many Americans had a feeling of normlessness; school was cancelled, flights were grounded indefinitely, and military presence was increased. Durkheim theorized that these periods of anomie and social disruption results in higher rates of criminal activity, which could be why some Americans engaged in hate crime, acting out against those who they perceived to have caused the disruption. Additionally, though the total incidents of religious hate crime have remained fairly constant throughout this period, the distribution of religious hate crimes has changed. Analysis has also been undertaken regarding the types of religious hate crime offenders, location of incidents, and geographic distribution. It is interesting to note that while Judaism, Christianity, and Islam are all monotheistic, scripturally-based religions, their members are targets of hate crime more frequently than atheists or agnostics. It would appear that religious biased individuals would prefer a person not to believe at all than to believe in the "wrong" religion.

STUDENT PERCEPTIONS OF SIGNIFICANT LEARNING EXPERIENCES IN PSYCHOLOGY CLASSES

Donna Webster Nelson, Ph.D., Ashley Penman, Tammy Stowasser
Presented at the National Institute for the Teaching of Psychology, January
2007

Ashley Penman,
December 2006
Department of
Psychology
Faculty Mentor: Donna
Webster Nelson, Ph.D.

Analyses of learning outcomes in higher education (e.g., Amiran, 1989) suggest the need for faculty to consider avenues for enhancing the quality of student learning. Fink (2003) proposes the development of educational objectives and practices that promote "significant learning experiences". He defines significant learning as that which creates lasting change and has an important impact on the learner's life. To elaborate on this conceptualization, Fink proposes a taxonomy of significant learning experiences that he argues will provide unique benefits to the learner. Our study explored student perceptions of significant learning experiences in psychology classes at Winthrop University. Psychology students were first asked to indicate the extent to which they had various learning experiences

that correspond to the significant learning taxonomy proposed by Fink (2003). Students were also asked to indicate how important they perceived each of the experiences to be. In the second part of the study, students were asked to describe in their own words, the most significant learning experience they have had in a psychology class and to indicate the level of psychology class involved. These written responses were coded in accordance with Fink's taxonomy. Analyses indicate that students report having significant learning experiences in psychology classes of all levels and their perceptions correspond to the theoretically proposed significant experiences.

OTHER STUDENT/FACULTY COLLABORATIONS

Brooke A. Currie, 2008
Department of
Psychology
Faculty Mentor:
Merry J. Sleight, Ph.D.

THE RELATIONSHIP BETWEEN RELIGIOUS ORIENTATION AND YOUNG ADULTS' ROMANTIC RELATIONSHIPS

Religion and the corresponding beliefs can influence an individual's life in many ways. Previous research by Rowatt and Schmitt (2003) investigated the effect of religious orientation on sexual behavior in young adults, finding intrinsic orientation related to more conservative sexual behavior. Franiuk, Cohen, and Pomerantz (2002) investigated relationship theory (soul mate versus work-it-out) and satisfaction, and found satisfaction in a relationship was based on both people's held theory and their individual feelings towards their partner. The purpose of the current study is to explore the relationship between religious orientation and relationship theory. Participants were 63 young adults with a mean age of 19.87 (SD=1.18). Participants completed a 50-item questionnaire that measured religious orientation, relationship theory, and demographic information. Results did not reveal any significant correlations between religious orientation and relationship theory. Results revealed that participants in the soul mate (SM) category were more satisfied in their current relationship than participants in the work-it-out (WIO) category, $t(28) = 2.28, p < .05$. Those without a religious affiliation were more extrinsic in religious orientation, $t(60) = -3.23, p < .05$. They were also more likely to report that religious beliefs did not matter as long as they lead a moral life, $t(61) = -3.86, p < .05$ and that religious beliefs had no influence on their everyday lives, $t(61) = -2.27, p < .05$. Essentially, the opposite was true for those with a religious affiliation. Participants who were involved in a romantic relationship were also more extrinsically oriented, $t(60) = 2.793, p < .05$. They were also more likely to believe that living a moral life was more important than religious beliefs, $t(61) = 3.39, p < .05$, and to report that religious beliefs have no influence on their everyday lives, $t(61) = 3.15, p < .05$. Again, the opposite was true of those not involved in a romantic relationship. Although the hypothesis was not supported, the findings of this research support the notion that religious beliefs do in fact influence behavior and thought process, even if not directly related to relationship theories.

Ria Feltman, 2007
Department of English
Faculty Mentor:
Amy Gerald, Ph.D.

ST. AUGUSTINE AND CHRISTIAN RHETORICI: BOOK IV OF ON CHRISTIAN DOCTRINE

Saint Augustine's theories on Christian rhetoric as found in Book IV of On

Christian Doctrine apply specifically to teaching. In this paper, I examine Augustine's theories and then relate them to my job as a spirituality group leader at a group home for teenagers. First, I give a brief overview of Augustine's work in relation to classical rhetoric. I then examine Augustine's theories in Book IV; including the "Doctrine of Illumination," the role of scripture, the role of prayer and the Holy Spirit, and the role of the three communication styles. Augustine says that scripture must be internalized in order to build a copia of scripture for the teacher. Prayer and reliance on the Holy Spirit are also necessary in order for the teacher to be guided by God in every circumstance, which Augustine says is important because God knows the needs of the audience. Lastly, the three communication styles (the subdued, the moderate, and the grand) are explained and discussed in relation to the circumstances in which they should be used. I relate Augustine's theories to my teaching by giving the example of teens lamenting that they are orphans, to which I apply the importance of scripture and prayer. I also give the example of telling the story about Lazarus in John 11:1-44, to which I apply the use of Augustine's communication styles. Ultimately, I agree with Saint Augustine that effective communication cannot rely on these principles alone, but also it must be coupled with love and empathy.

INSTRUMENTAL DESIGN AND SEMI-PERMANENT MODIFIERS IN TUNGSTEN COIL ATOMIC ABSORPTION SPECTROMETRY

Tungsten coil atomic absorption spectrometry (W-AAS) has recently gained attention because of its low cost and efficient atomization. Semi-permanent modifiers are believed to enhance the properties of an atomizer and are often studied on a trial and error basis. In this experiment, the determination of cadmium using the semi-permanent modifier, tantalum was investigated. A drinking water standard containing cadmium was diluted to levels from 10.0 parts per billion (ppb) to 0.500 ppb and placed on a tungsten coil electrothermal atomizer treated with 200 μg of tantalum. A home-written Visual Basic program was used to control the atomization cycle and by using a cadmium electrodeless discharge lamp (EDL) and a miniature fiber optic spectrometer, light intensity measurements were made at 326.1 nm so that absorbance calculations of cadmium could then be determined. It was found that by including a 180-second cooling step at the end of each atomization cycle, samples did not undergo vaporization when introduced onto the coil and allowed for higher absorption measurements. The effectiveness of the tantalum modifier was determined by comparing the absorbance of an uncoated coil to that of a tantalum-coated coil. Different coating levels were studied and it was found that with an increase in tantalum, the mean absorbance of cadmium would increase up until a 200 μg coating, with higher amounts having a plateau effect on absorbance. It was then determined with

Summer Hanna, 2007
Department of Chemistry,
Physics, and Geology
Faculty Mentor:
Clifton P. Calloway, Ph.D.

200 µg of the modifier, the limit of detection (LOD) was 0.2 µg/L and with an uncoated coil the LOD was 0.4 µg/L at 326.1 nm at 5.0 ppb cadmium. Similar changes in the LOD were seen in other concentrations of cadmium. An increase in absorbance was not seen ($p = 0.498$), and the coating was noticeably effective for over 100 firings. This indicates that while an increase in absorbance does not occur with the tantalum modifier, there is a noticeable decrease in the LOD and also a decrease in the relative standard deviation of multiple absorbance measurements. The decrease in these values, while not allowing for an increase in absorbance, does account for a decrease in the variability when taking sample measurements, contributing to improved figures of merit.

CONSTRUCTION OF A TUNGSTEN COIL ATOMIZER FOR USE WITH A MASS SPECTROMETER FOR TRACE METAL ANALYSIS

Carolyn Quarles, 2007
Department of Chemistry,
Physics, and Geology
Faculty Mentor:
Clifton P. Calloway, Ph.D.

Electrothermal vaporization (ETV), specifically the tungsten coil, has been studied recently as a viable alternative to common atomization techniques due to the smaller design and lower costs. This project proposes the use of a tungsten coil atomizer as an ionization source for mass spectrometry (MS). The current Inductively Coupled Plasma (ICP) MS ion source has higher costs, more involved maintenance, and larger required sample volumes than the tungsten coil. The tungsten coil only requires between 10 and 20 µL of sample solution and can provide a discrete signal with detection limits of 10-10 to 10-13 g of analyte. The coil heating rate is between 20 and 30 K ms⁻¹ when a 150 W power supply is used, and the atomization temperature range is 2000-3000 oC. The atomization system was created by assembling a tungsten coil cell containing a 15 W bulb, building a programmable power source for the cell, and writing a Visual Basic computer program to allow a user to control the current flow through the coil. Pure water was used to perform compatibility tests on the system, with positive results. A JOEL AccuTOF (Time-of-Flight) Mass Spectrometer was used to conduct the initial trace metal analysis with an easy interfacing of the new atomization cell to the MS. Trace metal grade water was used with a thermal program consisting of a drying step of 2.5 amps for 180 s, a cooling step with no current for 5 s, and an atomization of 8 amps for 5 s. A 'cleaning' step was also incorporated by adding an additional 8 amps to the coil for 10 s to remove any molecules remaining on the coil. The MS parameters were then modified to support the new system and under these conditions the spectrometer was able to detect ions. The overall results of the

project conclude that the tungsten coil atomizer is a feasible ionization source for use with mass spectrometry analysis of trace metals.

COLOR IN THE GREAT GATSBY INDICATES UNRELIABLE NARRATION

My essay, which is psychoanalytic in nature, investigates the possibility of Nick Carraway being an unreliable narrator in Fitzgerald's *The Great Gatsby*. Although Peter Lisca says in "Nick Carraway and the Imagery of Disorder" that Nick is "a paradigm of order and decorum," his consistent and sometimes unnecessary use of colorful language suggests an unconscious attraction to the decadence of New York in the 1920s (18-9). Lisca also says in his article that "it is Gatsby himself who is the most obvious contrast to Nick," but Nick's constant use of vibrant colors seems to indicate the ways in which these two characters are actually similar (22). It is interesting that Nick's narration implies a suppressed desire to live like his peers, because Lawrence Hyman says in "Moral Attitudes and the Literary Experience" that Nick maintains "a strong sense of moral superiority to all the other characters, including Gatsby" (163). However, this unconscious attraction, exposed through colors, only seems to present itself in the scenes preceding the murder of Gatsby. Once the seemingly glamorous lifestyle of a disillusioned millionaire turns tragic, Nick's colorful narration becomes noticeably darker and less frequent. Such a dramatic shift in narration suggests that *The Great Gatsby* is only one man's subjective view of a New York summer. My essay ultimately argues that it is inherently difficult for readers to trust a narrator if his or her perspective suddenly changes. Nick Carraway's intriguing use of color reflects, at least from a psychoanalytical perspective, the problem of a narrator who lacks objectivity.

Evan Adams, 2007
Department of English
Faculty Mentor:
Gloria Jones, Ph.D.

ECONOMIC CONTAMINATION IN JOHN STEINBECK'S THE GRAPES OF WRATH

John Steinbeck's canonical work, *The Grapes of Wrath*, is deeply immersed within the history surrounding its publication. Chronicling the physical and emotional journeys of the Oklahoma tenant farmers who were forced off the dried up lands they had tended to for generations, *Wrath* outlines Steinbeck's view of the rising capitalist economy and how it negatively affects any group or individual in its destructive path. Whether they are the destitute "Okies," the puppets of the bank, or the landowners forced to pay the paltry wages to the hungry workers, the economy makes a slave out of everyone. In Steinbeck's journals, many of which are compiled in *Working Days*, the *Journals of The Grapes of Wrath*, he writes about his experiences working alongside these people and seeing what they go through first-hand. He admits to his disdain for money and success in how it changes people into greedy, beastly creatures concerned only for survival. And survival, in this case, is ultimately

Justin Dickerson, 2007
Department of English
Faculty Mentor:
Gloria Jones, Ph.D.

dependant on money. In her article entitled “Judge, Observer, Prophet: The American Cain and Steinbeck’s Shifting Perspective,” Barbara A. Heavilin compares the American capitalist society to the Biblical figure of Cain, and that everything which gets in the way of personal profit must be destroyed. Not only were the “Okies” victimized, but gas station attendants, car salesmen, and the landowners advertising the jobs that aren’t there must bend to the will of capitalist greed. Families were forced to sell precious belongings in order to pay for the trip west and the false hope administered by the job flyers. Capitalism contaminated every level of the economic infrastructure. Via *The Grapes of Wrath*, Steinbeck is establishing his stance against the rise of the greedy, capitalist economy and providing factual evidence through a fictional account to a vast audience.

THE VAN LANDINGHAM FAMILY: A “COFFEE TABLE” HISTORICAL REFERENCE

Elizabeth Mutch, 2007
Department of English
Faculty Mentor:
Marilyn Montgomery

Using the Atkins Library Manuscripts Collections at the University of North Carolina at Charlotte, I researched information on the Van Landingham family for the current owners of the Van Landingham Estate in Charlotte, North Carolina. The Atkins Library Van Landingham Family Papers collection consists of 5400 items, including 413 photographs and 21 volumes spanning four generations of the Van Landingham family of Charlotte and the Harwood family of New England and Atlanta, Georgia. The volumes contain photographs, journals, scrapbooks, correspondence, household investment and expense records, genealogical records, and blueprints of the Van Landingham Estate. From these items, I selected thirty photographs and twenty documents, which included newspaper clippings, journal entries, family correspondence, and scrapbook mementos, to be compiled in a “coffee table” historical reference book. Copies of this reference book will be placed in each of The Morehead Inn’s nine rooms and throughout the Van Landingham Estate in North Charlotte for guest use. The fifty items I selected will be digitally scanned and saved to a CD for the owners of the Van Landingham Estate to include on their website, as well as to facilitate for the owners their continued documentation of this historical home’s rich Southern roots.

BREASTFEEDING POLICY WORLDWIDE

Ashlie Evans
Department of Political
Science
Faculty Mentors:
Karen M. Kedrowski, Ph.D.
and Michael E. Lipscomb,
Ph.D.

Medical experts agree that breastfeeding provides myriad health benefits to infants and children alike. The World Health Organization estimates that 1.5 million lives could be saved worldwide if all infants were breastfed exclusively for the first six months. Recognizing the public health importance of breastfeeding, many countries have implemented public policies to encourage and support women’s efforts to breastfeed their babies. The United

Nations has also developed model policies for countries to adopt through the Innocenti Declaration. At the same time, however, mothers may transfer pollutants and diseases such as the virus that causes HIV/AIDS through their breastmilk. Consequently, for some women breastfeeding is contraindicated. This study examined breastfeeding policies adopted in the US and worldwide to understand and analyze the complex relationship between breastfeeding and public health. This information informs to publications underway: Breastfeeding Rights in the United States and “Breastfeeding Rights and Health Policy Worldwide,” both by Drs. Karen Kedrowski and Michael Lipscomb.

EVALUTATION OF HMGA1 RNA LEVELS AND PROTEIN EXPRESSION IN A COLON CARCINOMA MOUSE MODEL

Colon cancer is a slow developing cancer that causes an estimated 52,000 deaths a year. One family of proteins thought to be involved in the development of colon cancer is the High Mobility Group A (HMGA) protein family. This family of proteins, comprised of HMGA1a, HMGA1b, and HMGA2 are non-histone, chromosome-binding proteins that alter gene expression and promote tumor progression. Recent studies of this protein have shown that it is increased in a variety of cancers and is capable of transforming cells from their normal to cancerous state. Although much is known about HMGA's role in cancer, the details of their oncogenic properties remain unknown. To better understand the specific role of the HMGA1 protein in colon carcinoma formation, we evaluated the expression of the HMGA1 protein in the APC/min colon cancer mouse model. The APC min mouse model was chosen because it has a truncated APC gene which results in colon tumors. Protein and RNA was extracted from intestinal and intestinal tumor tissue samples of normal and APC/min mice. Both reverse-transcriptase polymerase chain reaction (RT-PCR) and real-time quantitative RT-PCR were used to measure relative levels of the HMGA1a messenger RNA (mRNA). Using semi-quantitative RT-PCR analysis, we observed a 2-fold increase in HMGA1 RNA levels in the APC intestinal tumor when compared to intestine samples obtained from normal mice. Quantitative real-time RT-PCR indicated that HMGA1 mRNA levels were 8-9 fold higher in samples isolated from APC-min intestinal tumors than those found in normal mouse tissues. To correlate HMGA1 mRNA levels with protein expression, western blots were conducted on protein extracted from these samples. Consistent with our RT-PCR results, we found HMGA protein levels to be significantly higher in intestinal tumors than those from normal mouse tissues. Collectively, these results provide the first line of evidence that HMGA1 and APC may act in cooperation to initiate and advance colon cancer. Current studies are underway to expand the number of samples evaluated and confirm our findings. A better

Bethany M. Bush, 2009
Abby Pitchford, 2009
Cameron Waller, 2009
Department of Chemistry,
Physics, and Geology
Faculty Mentors:
Takita F. Sumter, Ph.D.
and Kim McKinney

understanding of the protein's causal role in cancer progression is likely to lead to the development of more effective and specific cancer therapies.

THE USES OF ECONOMIC SANCTIONS

John Auvil, 2007

Department of Political
Science

Faculty Mentor: Jennifer
Leigh Disney, Ph.D.

Economic sanctions have a notorious past regarding getting nations to actually concede to the demands of the nation pressing them. Economic sanctions are a political tool, yes, but they are also a statement of belief by the nation using them. A nation is condemning the actions of another nation when implementing economic sanctions, whether due to human rights abuses, political differences, unfair trade practices, or simply to maintain credibility. Those using economic sanctions are also hoping that the markets they are trying to manipulate will prove cooperative and predictable. No matter how you look at the economic sanctions coin, there are two sides that make up the whole. There is a political side in which politicians must deal with international pressure, and domestic pressure from citizens and states, and there is also an economic side of the coin. In a world with increasing power in transnational corporations, IMF structural adjustments, American influence, and increasing interdependence, some nations are forced out of the system through sanctions. As William Tabb puts it in *The Amoral Elephant*, "Globalization is understood by most people as a problem of markets expanding beyond people's capacity to affect them" (13). If this is true, who is it that no longer has the capacity to affect them? It would be assumed that the power is slipping from each and every individual's hands, though doubtfully at a uniform rate. Wouldn't one need the ability to affect markets in order for sanctions to be successful? It would certainly seem that it is necessary. This paper will explore a comparative analysis of the cases of Rhodesia, Cuba, South Africa, Iraq, Haiti, and Libya in order to analyze both the economic and political uses of economic sanctions within the context of globalization, providing a nuanced analysis of the successes, dangers, and limits of economic sanctions.

AN ANALYSIS OF THE CAMPUS CLIMATE TOWARD HOMOSEXUALITY AT WINTHROP UNIVERSITY

Angad Chera, 2007

Department of Political
Science

Faculty Mentor:
Scott Huffman, Ph.D.

This research uses an internet based survey to examine the attitudes of Winthrop students toward gays and lesbians and homosexuality, in general. In addition to tapping the students' familiarity and contact with individuals of differing sexual orientation, the study examines how those attitudes influence the belief in stereotypes and individual behaviors. Finally, the research examines contextual influences, such as parental attitudes, on students' feelings toward gays and lesbians.

WINTHROP UNIVERSITY UNDERGRADUATE RESEARCH INITIATIVE

COLLEGE OF ARTS AND SCIENCES

The Winthrop University Undergraduate Research Initiative (WUURI) in the College of Arts and Sciences supports a student-centered learning environment that fosters student research, scholarship, and creative activities. The Initiative encourages students and faculty mentors to collaborate in the design and implementation of projects and the dissemination of results.

DIRECTOR OF UNDERGRADUATE RESEARCH:

Dwight Dimaculangan, Ph.D.

UNDERGRADUATE RESEARCH ADVISORY COMMITTEE:

Carlton Bessinger, Ph.D. – Human Nutrition

Rory Cornish, Ph.D. – Chair of the History Department

Paul Dezendorf, Ph.D. - Social Work

Douglas Eckberg, Ph.D. - Chair of the Sociology and Anthropology Department

Teresa Justice. – Director of the Sponsored Programs and Research

Karen Kedrowski, Ph.D. – Chair of the Political Science Department

Robin Lammi, Ph.D. - Chemistry

Jonathan Marx, Ph.D. – Sociology

Chasta Parker, Ph.D. – Chemistry

Peter Phillips, Ph.D. – Interim Co-Director of Environmental Science and
Environmental Studies program

Jean Silagyi-Rebovich, Ph.D. – Office of Assessment

Merry Sleigh, Ph.D. – Psychology

Jane B. Smith, Ph.D. – Director of the Writing Center

Kristi Westover, Ph.D. – Biology

INDEX OF STUDENTS AND FACULTY MENTORS

STUDENT

51	Evan Adams
54	John Auvil
8	Richard Anderson
33	Inesha Baker
29	Jessica A. Baker
16	Jessica Bean
4	Christopher Bennett
6,7,11	Hollie Blake
15	Sara B. Bridges
35	Trekeelia Brisbon
53	Bethany M. Bush
54	Angad Chera
45	Caitlin V. Cihak
43	Amanda Clark
39	Justin L. Cohen
12,44	Jessica N. Cooke
48	Brooke A. Currie
42	Shakena Daniel
10,30	Casserly Daniels
18	Emily Davis
51	Justin Dickerson
21	Lindsay Drake
42	Kyle Dukes
52	Ashlie Evans
1	Kathryn Farkas
2,20,25	Hallie Farmer
34	Ashley Felker
30,48	Ria Feltman
32	Zainab Ghadiyali
33	Rachel Glazener
34	Mike Goldberg
42	Joseph Goodwin
49	Summer Hanna
1	David Harbin
22	Brecken Hentz
24	Melanie Hildebrant

20,25 Jessica Hudgens
 6,13 Brandy N. Hughes
 2 Emily Heckl
 25 Christina Jarrard
 10,30 Kathleen Jocoy
 17 Jenny Johnson
 24 Melissa Kinyon
 32 Shannon Kissinger
 7 Melissa Knudstrup
 9 Katie Leonard
 23 Amanda Loveland
 23 Brittany Martin
 26 Tiffany Mason
 22 Christina Mastrianni
 21 Montrell Mitchell
 26 Bryan Moore
 52 Elizabeth Mutch
 38 Brian Nunnally
 8 Kelly Pace
 25 Emily Patterson
 46 Ashley Penman
 53 Abby Pitchford
 50 Carolyn Quarles
 22 Andy Reid
 2,9,41 Samantha Reynolds
 18 Monique K. Robinson
 21 Justine Rossi
 23 Lindsey Ryan
 28 Whitney Simmons
 31 Jonathan Hall Slade Jr
 34 Lindsey Stewart
 15 Kristy Beth Taylor
 34 John Thompson
 23 Ashley Tuttle
 14 Geoff Vana
 8,53 T. Cameron Waller
 32 Lavonda Walker
 38,39 Brooke Walters
 31 Mary Ward
 41 Sarah Wengryniuk
 13,45 John "Heath" Whatley
 3 Ian Jennings White
 28 Ryan Wicklund

22	Erin Wilcox
18,27	Melissa Williams
19,23,28	Elizabeth Williams
5	H. Howell Williams IV
14	Rachel Williams
36,37	Allison Wise
39	Ame Woods
22	Caroline Wylie

FACULTY INDEX

2	Gary Alderman
6,11	Adolphus Belk
49,50	Clifton P. Calloway
2,4,17,55	Dwight Dimaculangan
2,3,5,7,54	Jennifer Leigh Disney
6,13,14,15,39,55	Douglas Eckberg
2,20,25	Hallie Farmer
27,30	Matthew Fike
2,10,30,31	Cheryl Fortner-Wood
48	Amy Gerald
4,43	Laura Glasscock
18	James M. Hanna, Jr
41	Aaron M. Hartel
1	Edward Haynes
54	Scott Huffmon
32,33	Jason Hurlburt
6	Kelly James
36,51	Gloria Jones
9	Peter Judge
6,52,53,55	Karen M. Kedrowski
31	Lennart Kullberg
42,55	Robin Lammi
6,52	Michael E. Lipscomb
1,2	Kathy Lyon
29	Ameda A. Manetta
1,55	Jonathan Marx
32	Kimberly McKinney
2,7,13,45	David Meeler
52	Marilyn Montgomery
46	Donna Webster Nelson
7	M. Gregory Oakes

32,33	Chasta L. Parker
35	Cindy Pury (Clemson University)
3	Dave Pretty
25	Darren R. Ritzer
36	Jack DeRochi
4	William Rogers
38	Jeff Sinn
9,18-24,26-28,34-35,39,48	Merry J. Sleigh
5	Stephen Smith
16	Christopher Storie
8,40	Takita Felder Sumter
6	Bradley Tripp
1,3	Christopher Van Aller
1	Evelyne Weeks
2,4,12,14,44,55	Kristi M. Westover
1	Virginia Williams
	Kimberly Wilson
1	Sandy Wilson
13	Dabian "Tyari" Witherspoon

