

**Creative Inquiry Celebration**  
**Friday, May 1, 2009**

**Kallan Anastasi and Kendra Mays**

Faculty Sponsor: Leila Brammer, Communication Studies

Disregarding Sexual Assault and Rape as 'Something Else'

Abstract: By conducting a survey of eighty-five Gustavus undergraduate students, receiving feedback while handing out consciousness raising slips of paper to students on the weekends, and from students' personal experiences, we have been able to get a better sense of how Gustavus students conceive sexual assault and rape within the Gustavus community. Our analysis shows how victim blaming affects the different ways that students account for their experiences. We found that students acknowledge behavior that would otherwise be considered sexual assault or rape as occurring at Gustavus, but they rarely define the experience in such definite terms. In the end of our study we formulated ways this problem is often overlooked on college campuses and how it can be addressed more adequately at Gustavus.

**Katie Anderson, Molly Kolpin, Ryan McGinty, Abby Travis, Abbie Hitzemann, Marlene Kvitrud, and Bethany Ringdal**

Faculty Sponsor: Baker Lawley, English

Firethorne Literary Magazine

Abstract: Firethorne is Gustavus' own literary magazine. The magazine is student run and is comprised solely of Gustavus students' work. We plan to present the Fall 2008 Firethorne as well as having a poster that displays how the process of creating a literary magazine works.

**Laura Arnebeck**

Faculty Sponsor: John Clementson, Education

Impact on Student Learning Project: Fifth Grade Unit on Using Voice in Writing

Abstract: This research project was conducted in my seminar class during my student teaching experience. It involved designing and teaching a series of lessons to students in order to take a closer look at how teaching affects students' learning. The unit involved using the writing trait of voice and measuring learning through pre and post assessments. By looking at the classroom culture, unit outline, and assessments, I gained insights into my teaching strengths and areas to improve, and possible reasons for student progress or stagnation. Findings from the study showed that through the use of writing exercises most students were able use more voice in their writing by the end of the unit; also I found that the more voice examples shown to the students, the more they understood the concept. I

plan to present my project by showing the outline of the unit, data results and interpretations, my reflections, and student work samples.

**DeeDee Arnold, Ross Giel, and Kaitlyn Ogren**

Faculty Sponsor: Karl Larson, Health and Exercise Science

Media's Impact on Teen's Physical Wellness

Abstract: The purpose of this research is to discover and understand the impact that media has on the physical wellness of teens. The research has been broken down into three subcategories: violence in media, sex and media, and media's effect on teen body image. Because this topic also deals with the teen mind, a psychological approach is also addressed. The organizations and other individuals who are working to better control the media being presented to teen society are also in the research. These three issues make it clear to see how media has become a large contributor to how teens develop behaviors.

**Jeremy Bedard**

Faculty Sponsor: Dwight Stoll, Chemistry

Development of Heartcutting 3-Dimensional High Performance Liquid Chromatography for the Analysis of Triclosan in Surface Waters

Abstract: Surface water samples often contain thousands of compounds at very low concentrations. With a complex sample, detection of the target analyte is not the limiting step, but rather the separation of the target from the soup of compounds. One way to combat the difficult separation is by using a multi-dimensional HPLC system. This system works by slicing the injected sample in order to expose the target analyte to three chemically and physically different columns. Extensive work has been done building a three-dimensional HPLC system for this purpose. Triclosan in surface water has been chosen as a model analyte to test the effectiveness of the 3-D system. Triclosan is a common anti-bacterial found in soaps, detergents, and other cleaning supplies. Wastewater treatment techniques can often times chlorinate triclosan. The release of the chlorinated derivatives into the environment has caused some alarm as the compound naturally degrades into chlorinated dioxins. The toxicity of these dioxins can be extremely high. The objective of the 3-D system is to quantitatively separate triclosan in a surface water sample and determine its concentration. This can be done quickly, under fifteen minutes, efficiently, and completely under computer control.

**Ignacio Belmonte**

Faculty Sponsor: Henry Hays, Economics and Management

Credit Availability: Key to Fighting Recession

Abstract: The current economic recession in the US, is in large part a result of mortgage failures that have caused large losses for banks and other financial institutions. Consequently the extension of credit throughout the economy has slowed causing a

further decline in the economic activity (falling GDP, rising unemployment, lower incomes and peoples inability to buy and pay bills). This research focuses on what public policies will allow the U.S economy to get credit flowing (unfrozen) so that the economy can get back to business as usual (loans for mortgages, small business, autos, etc.). The goal of the public policies is to get credit flowing, increase consumer spending, and restore confidence in the financial system. Only when this occurs will the US economy pull out of its recession and achieve sustained growth.

**Annie Berger and Molly G Faricy**

Faculty Sponsor: Stephanie Otto, Health and Exercise Science

The Acute Effects of High Fat versus Low Fat Meals on Respiratory Exchange Ratio, Perceived Exertion, Heart Rate, and Blood Pressure During Exercise

Abstract: High fat foods have been associated with the development of obesity however; their effect on exercise performance is less clear. Bird and Hay (1987) and Thomas, Brotherhood and Brand (1991) reported that high carbohydrate ingestion improved exercise performance. Rowland and Hopkins (2002) and Stevenson et al. (2005) reported no significant difference in metabolism after pre-exercise meals. The purpose of this study is to examine the effects of a pre-exercise meal on exercise performance. Subjects include ten volunteer female students who are physically active at least three days per week. Heart rate, blood pressure, Rate of Perceived Exertion (RPE) and Respiratory Exchange Ratio (RER) will be the dependent variables. The research design will compare the effects of high fat and low fat pre-exercise meals on the dependent variables. Participants will perform a Balke-Ware sub-maximal treadmill test as described in the American College of Sports Medicine (2006) to estimate their maximal oxygen uptake (VO<sub>2</sub>). Subjects will then perform two trials of treadmill exercise at 65% of their VO<sub>2</sub> max for 30 minutes. Separate trials will be performed three hours after eating a high fat meal and three hours after eating a low fat meal. A multivariate analysis of variance will be used to examine differences in the dependent variables between trials. An alpha of 0.05 will indicate significance.

**Colin Boettcher, Chelsea Koepsell, and Kelly Rozenboom**

Faculty Sponsor: Brenda Kelly, Chemistry

Allosteric Behavior of Monomeric E. Coli Gamma-glutamylcysteine Ligase in the Presence of Non-substrate Analogs

Abstract: The enzyme gamma-glutamylcysteine ligase (gamma-GCL) catalyzes the first and rate-limiting step in the synthesis of glutathione, an important detoxicant in nearly all eukaryotes that has been implicated in chemotherapeutic resistance. In the study, non-substrate amino acid analogs were used to probe active site structural constraints. Analogs altered kinetics substantially and inhibited or activated depending upon structure of the side chain and stereochemistry. Fluorescence titration studies confirmed that the analogs bind to the enzyme and alter the binding affinity of the biological substrate cysteine or a cysteine-mimic. Sigmoidal binding curves illustrate that the enzyme

exhibits cooperativity in the presence of non-substrate analogs, but not a natural substrate, ATP. Gel-filtration chromatography results indicate that E. coli gamma-GCL is monomeric. These results suggest two distinct binding sites that bind a cysteine substrate or non-substrate analog; the binding of a non-substrate analog significantly impacts whether cysteine can bind in an activating or inhibiting manner.

**Britta Bolm**

Faculty Sponsor: Henry Hays, Economics and Management

U.S. Foreign Aid: Improving Delivery to Developing Countries

Abstract: Through the United States Agency for International development (USAID), the U.S. gives less than one half of a percent of the federal budget to aiding developing nations around the world. The purpose of organizations such as USAID is to support long-term and equitable economic growth and development and advance U.S. foreign policy objectives by supporting such things as growth through agriculture and trade, global health, and expanding democracy through free markets. Sometimes however, distributing this aid can be a difficult task when facing hostile or corrupt governments. This study investigates the different ways that foreign aid is delivered to these developing countries around the world and will determine whether it is best to deliver the aid through normal government channels or through Non-government organizations also known as NGO's.

**Greg Boone**

Faculty Sponsor: Phil Voight, Communication Studies

International Audio Diary: A Semester in China

Abstract: While I was studying in China this past fall I kept a weekly podcast documenting my experience. I kept a written journal from which I redacted stories and analysis of my experience to create a 10-20 minute radio program. I plan to demonstrate how I made the recordings and edited the podcast, as well as where I took inspiration for what to write about. I plan to have a demonstration running on a laptop, and have audio samples available for people to listen to the final product.

**Samantha Broderius, Carrie Johnson, and William Schultze**

Faculty Sponsor: Karl Larson, Health and Exercise Science

Antibiotic Resistant Bacteria

Abstract: Recently, in the past decade or so, a significant decline in research to develop new antibiotic agents has occurred. Simultaneously, an increase in the resistance of bacteria to antibiotics currently available has spread across America. This study focused on several main points pertaining to the rise of antibiotic resistant bacteria in addition to the misuse of drugs and misdiagnosis of infections. Firstly, the evolution of antibacterial resistance will be described. A brief history of antibiotics will follow. Next, individual

effects of antibiotic resistant bacteria will be covered. Moving to a larger scale, macro scale effects on the American society will be examined. Lastly, several solutions and ideas as to how we can appropriately address this increasingly dangerous problem will be described. In order to address this issue, antibiotics must be properly prescribed and administered and research for new antibiotics must be increased.

**Jennifer Broman**

Faculty Sponsor: Leila Brammer, Communication Studies

A Rhetorical Perspective of Robert F. Kennedy's Speech on the Assassination of Martin Luther King Jr.

Abstract: On the evening of April 4, 1968, in an extraordinary moment in American history, Robert F. Kennedy addressed a predominately black audience in an Indianapolis ghetto from a makeshift podium that was mounted onto the back of a flatbed truck. Kennedy had learned, just hours before, that civil rights leader, Martin Luther King, had been shot and killed. The crowd gathered before him was unaware of the tragedy. A critical examination of Bobby Kennedy's speech finds it to be a testimony to the power of rhetoric in effectively communicating a message. By establishing connections with the audience, their feelings, and their values, Kennedy's rhetoric was able to cross racial and class boundaries to establish a level of persuasive communication that was able to diffuse significant aggression and unify his audience to act upon their belief in American ideals.

**Becky Carlson**

Faculty Sponsor: Marie Walker, Psychology

The Influence of Attachment and Framing in Mentoring Preferences

Abstract: Mentors influence people in all stages of life. From youth mentoring to workplace mentoring, they all support, encourage, and influence the development of a mentee by increasing social support, promoting goal setting and attainment, and increasing life satisfaction (Rhodes & DuBois, 2008, DuBois & Silverthorn, 2005). The purpose of the study is to examine how likely mentors who utilize different motivational strategies are to be chosen based on the attachment style of the mentee. Attachment is central to the development of relationships and Bowlby defined attachment as "any form of behavior that results in a person attaining or retaining proximity to some other differentiated and preferred individual" (1980, p. 39). The hypothesis of this study is that securely attached participants will be more likely to choose promotion-oriented mentors than will insecurely attached participants. It is hypothesized that insecurely attached participants will be more likely to choose prevention-oriented mentors than securely attached participants.

**Becky Carlson, Kate Nelson, and Megan Taylor**

Faculty Sponsor: Kyle Chambers, Psychology

The Impact of Text Messaging on Relationships

Abstract: Recently text messaging has become a popular mode of communication and has impacted how language is used. The present study investigates the correlation between frequency and length of text messages, distance from the recipient, and relationship with the recipient (relative, friend). It is hypothesized that text messaging will be used more frequently with friends than family. Secondly, it is hypothesized that text messaging will increase closeness in relationships only among those who frequently text the same people, and it is also hypothesized that texting will decrease as distance between two people increases.

**Tasha Carlson**

Faculty Sponsor: Kris Kracht, Communication Studies

100,000 People Are Waiting For An Organ: What Can You Do?

Abstract: The organ transplant list exceeded 100,000 names for the first time every in history in October, 2008. As we live longer, diagnose diseases earlier, and treat our body's worse with processed food, alcohol, and cigarettes, we will only continue to watch this number exponentially grow. When only 35% of Americans are organ donors, in order to save lives we must rely upon the donation of healthy human organs. It is imperative for you to become better informed about this growing problem and, to become an organ donor.

**David Christians**

Faculty Sponsor: Martin Lang, Communication Studies

American History NeXus: An Instrument for the Perpetuation of Racist Imagery in Contemporary Society

Abstract: The 1998 film, American History X, is a provocative depiction of the cyclical consequences of hate and the dark facets of racism in the contemporary United States society. Textual and contextual analysis found that the film presents two contesting ideologies: that most minority races are not violent, criminal, and are educated, contrasted with the ideology that most minority races are violent, criminal, and uneducated. My analysis found the latter to be the prevailing ideology and that the film does not act to break the hegemonic stereotypes of race and racism in the United States, but that it reinforces and upholds the hegemonic stereotypes of racial groups. Ultimately, I argue that the repeated racist and stereotypical portrayals of minorities in the film, American History X, and other mass media outlets acts as an instrument and a nexus for the perpetuation of negative racial imagery of minorities into contemporary and future society.

**Briana Clark**

Faculty Sponsor: Kris Kracht, Communication Studies

The Use of Inert Per-fluorocarbons in Therapeutic Liquid Ventilation

Abstract: In this presentation, I will inform my audience about an intriguing (and surprising!) medical treatment --- liquid breathing. This procedure, which is formally known as "liquid ventilation," is used to save the lives of extremely premature infants and also shows potential for treating other conditions. The secret behind liquid breathing is a family of chemicals known as inert per-fluorocarbons (PFCs). These chemicals are non-toxic, non-reactive, and have an uncanny ability to carry oxygen. These unique properties are what make liquid ventilation possible. My presentation will highlight research that I completed this year while putting together an Informative speech for the Forensics team, and includes material from medical journals, chemistry publications, and personal interviews with experts. Through presenting my research, I hope to not only show the audience what liquid ventilation is but also explain why it is relevant and promising in the medical field.

**Michaella Crnkovic**

Faculty Sponsor: Amy Seham, Theater/Dance

"What Masochists We Are!" The Lives of Theatre Students

Abstract: My project focused on two questions I asked theatre majors and minors at Gustavus - "How did you feel about theatre coming into Gustavus?" and "How has theatre changed for you since coming to Gustavus?" I interviewed freshman through seniors for the project - the freshman and sophomores were asked the first question and the juniors and seniors were asked the first and second questions. In addition to those questions, others arose during the course of the interviews, including, "What drew you to theatre?" "Why do you continue doing theatre?" "Why do you - and society - go see other theatre performances?" and "How do you plan to incorporate theatre into your life after Gustavus?" The interviews were conducted as one-on-one interviews and the information was recorded by note-taking. I plan to present my hypothesis and my findings at the presentation.

**Laura Danielson**

Faculty Sponsor: Jill Locke, Political Science

What Makes An Action Political? A Case Study of Consciousness-Raising

Abstract: Political theorists have traditionally defined the political as relating specifically to the public sphere. Contemporary feminist theorists have substantially expanded the definition of political to include both the public and private spheres as illustrated through their mantra "The Personal is Political." This paper attempts to solve the dilemma of the political by searching for an accurate and adequate description of political action. Using the example of consciousness-raising, I argue that the equation of the personal and political is problematic. Equating these two concepts decreases the relevance and importance of the political as the definition becomes too inclusive. Additionally, most problems are now considered political and change must frequently come from the state or collective, which limits individual agency in advocating for change. The essay concludes

with a definition of the political which proves beneficial in meeting the current needs of feminist politics.

**Mary Depuydt**

Faculty Sponsor: Jill Locke, Political Science

Can Libertarian Ideology Prevent the Apocopyse

Abstract: The application of a political theory without consideration to the circumstances surrounding the society to which it is to be applied is dangerously brash. In modern American politics there has been a reemergence of Liberal/Libertarian thought. However, the implications of a minimalistic government are feared as adverse, specifically in regards to protection of the environment and development of renewable resources. However, using the models of three prominent economic liberals, Friedrich Hayek, Ludwig von Mises and Adam Smith, it is possible to foresee coexistence a Liberal government and a healthy and inhabitable planet. Via the people's consent to an entirely free market economy and Hayek's invisible order, Mises praxeology and Smith's invisible hand society will undergo environmentalist realignment. The direction of this realignment, albeit possibly retarded, would be the movement away from disregard for pollution, air emissions and use of non-renewable resources and towards a self-sustaining and innovative society.

**Randi Dettling**

Faculty Sponsor: Martin Lang, Communication Studies

The Real Gender Pay Gap

Abstract: It has been proven that there is a sex pay gap, but there is a gender pay gap as well. The gender pay gap can be broken into several dimensions. The first aspect is the undervaluing of feminized work; second is the distribution effect or funneling of males into masculine careers and females into feminine careers; third, there is a double bind that limits females from succeeding; finally, one's perceived gender can have an affect on one's earning potential. The gender pay gap actually encompasses the sex pay gap because, unfortunately, in so many people's minds, sex and gender are intertwined. If we are ever going to make changes in the institution of work, we need to realize that females are not the only people who suffer from the gender pay gap; it affects females and feminine occupations, as well as feminized men.

**Randi Dettling**

Faculty Sponsor: Kris Lowe, Art and Art History

Abstract Light Photographs

Abstract: I am doing a study of motion. With a low shutter speed and long exposure times it's simple to collapse time into one photo graphic frame thus capturing motion. By using time-lapse photography you record what you're seeing over multiple

seconds but it's shown all in one frame. To produce this work I capture car headlights as they zoom by. Unlike many non-representational artists my abstract photographs are abstracted from the image I was looking at. All my pieces are extremely different and thus capture the spontaneity of motion. Motion is not mechanical or predetermined but rather spontaneous. As with the motion of the car headlights my process of capturing them is spontaneous. Through experimentation with camera settings and unique maneuvering I am able to use car headlights as a medium to express motion. It is through my camera I am able to connect with and capture the spontaneity of motion.

**Buyuan Dong**

Faculty Sponsor: Henry Hays, Economics and Management

US AIDS Policy Towards Africa: Improving Efficiency

Abstract: The incidence of AIDS and the suffering it causes are the worst worldwide in Africa. It results in great economic loss to African economy. Improving the situation is essential for promoting further economic development in Africa. The research problem is to examine the situation regarding U.S. policy and to determine what can be done to improve it. In many different ways, the devastation of AIDS among individuals and families ultimately affects a country's overall economic performance. The loss of experienced workers and skilled professionals saps production in key sectors harming productivity and undermining people's willingness to save and invest. This research examines U.S. AIDS policies towards Africa including: 1) trends in the dollar size of assistance, 2) the various approaches to dispensing this assistance, and 3) the perceived effectiveness of these approaches. Its purpose is to determine what needs to be done to improve U.S. AIDS policy and make it more efficient.

**Christine Dornbusch**

Faculty Sponsor: Michele Rusinko, Theater/Dance

Exploring the Art of Theatrical Dance Performance

Abstract: The objective for this project is to develop an educated understanding of the importance and technique of theatrical performance as it pertains to the dance art form. I will use research, rehearsal observation, and interviews with students and faculty to explore the effect of focus and intention on movement quality and audience reception. My project also includes a performance component. I will choreograph a dance piece for six members of the Gustavus Dance Company that challenges the performers to embody a wide range of emotions at varying magnitudes that either complement or contrast with the style of movement. The presentation of this project includes a poster summarizing my research along with a video of the performance piece.

**Jokotola Edu**

Faculty Sponsor: Leila Brammer, Communication Studies

Coffin for Head of State

Abstract: I analysed "Coffin for Head of State," a Nigerian song written by Fela Anikulapo-Kuti in 1981. This song highlights events that occurred in 1977, a period of harsh military rule in the country. Additionally, it provides a lens through which we can understand how the citizens of the country lived at the time. Fela released this song during a period of civilian rule, although it was described by his cousin, Wole Soyinka as fascistic and wastrel. The song focuses on corrupt practices of former colonizers and the African, especially Nigerian government. This song can be played over and over again, making it a very interesting artifact to be studied. Anikulapo-Kuti maintained a large fan base because of his bravery to sing about the government and endure imprisonment and punishment several times.

**Kayla Elbert**

Faculty Sponsor: Sarah Wolter, Communication Studies

Public Discourse: Civic Engagement Project; Homelessness

Abstract: The Communication Studies Public Discourse class provides students with an introduction to the principles of public discourse and civic engagement with an emphasis on analyzing and constructing arguments and completing a semester-long civic engagement project. This project is a way for students to be actively engaged in a community by identifying an issue, researching the issue, and implementing a solution to combat the issue. For the project, I partnered with Advent Lutheran Church to raise awareness about the issue of homelessness by giving a presentation and raising money for Feed My Starving Children (FMSC ), which is a non-profit Christian organization where volunteers package food for under-developed countries. I recruited a group of 30 people to go to FMSC to help package food. In addition, Advent Lutheran raised a total of \$329.59; enough to feed over 2,200 people. This civic engagement project showed me that anyone can make a difference.

**Anne Engebretsen and Alex Neville**

Faculty Sponsor: Kyle Chambers, Psychology

It's All in the Words: The Manipulation of Emotional Language in Advertising

Abstract: Does the language of an advertisement play a role in the persuasion of consumer choice? Chauhan (2006) argued, " language is the most powerful and convenient form of communication, and makes mass selling possible through advertisements (p. 2)." We hypothesized that copywriters can manipulate consumer choice and event attendance through the use of emphatic words and specific syntactical and lexical structures. The present study draws from previously established persuasive words and language structure to describe five "nonsense" products available for sale. Participants viewed one of two versions of the same advertisement for each product. Each participant then rated the likelihood they would purchase each item. Based on our findings, University marketers can modify their language choice to optimize their

advertisement goals. The utilization of enticing advertising for entertainment or educational events on campus will increase student interest and thus attendance.

**Ryan Espy**

Faculty Sponsor: Amanda Nienow, Chemistry

Byproducts and kinetics of imazethapyr hydrolysis and photolysis

Abstract: The photolysis and hydrolysis of imzaethapyr, the active ingredient in Pursuit, was monitored as a function of pH, temperature, and wavelength of UV light. The kinetics of disappearance of the parent compound was determined under different experimental conditions. It was found that imazethapyr photo-transformation was slower when the compound was dissolved in natural river water samples (Minnesota and Mississippi Rivers) than in buffered Nanopure water. This was attributed to light filtering effects of natural organic matter. Experiments with IHSS NOM showed that the pseudo-first order rate constants of imazethapyr degradation decreased with increasing NOM concentration except at low concentrations of NOM. At these concentrations, it appears that the formation of radicals or other reactive oxygen species upon the irradiation of NOM cause an increase in rate constants. Hydrolysis experiments with imazethapyr show that the compound is stable to hydrolysis at 9, 20, or 30 Å°C in pH 7 phosphate buffer. The byproducts formed in the photolysis experiments have been identified and the kinetics of formation of these products is currently being explored. This data will be used to develop a proposed mechanism of reaction.

**Jill Fagerstrom**

Faculty Sponsor: Mark Bjelland, Geography

What Has Happened to Old Churches?

Abstract: Many older church buildings were built at a time when the layout of towns and cities, as well as the ethnic and religious makeup, was different than it is now. In little over a century, Nicollet County has moved from primarily rural, with horse-and-wagon transportation, to being urbanized and highway-based. Ordinarily, landscape change means that the establishments in the area must move or die. Yet many old churches still exist, increasingly becoming anachronisms as time goes on. The ways in which they do so, maintaining membership against the newer, more strategically-placed churches, are many and varied. Some have had to change form, by getting rebuilt or changing denominations. Others stubbornly remain the same, keeping their congregations through the pull of history and tradition. This historical geography paper examines the churches in Nicollet County, MN that existed in 1899 and how, why and if they still exist today.

**Annika Ferber, Julia Lawant, and Cody Sukalski**

Faculty Sponsor: Karl Larson, Health and Exercise Science

Cholesterol and its Effects on Different Ethnic Groups in America

Abstract: High cholesterol is affecting many Americans in every ethnic group. This is a serious health issue because high cholesterol leads to putting the body at risk for coronary heart disease, heart attacks, atherosclerosis, and other problems. For these reasons, it is vital that Americans keep an eye on their cholesterol levels and know how to combat it so the issue can be addressed. Because it is a problem now, preventative action is the next step for Americans. The action that needs to be done should be more focused, considering cholesterol effects various ethnic groups in different ways. There are many other explanations for the differences seen between ethnicities, and investigation among these groups will show the varying reasons why there is a discrepancy

**Rose Follis**

Faculty Sponsor: Mary McHugh, Classics

The Failure of Roman Sumptuary Laws

Abstract: I plan to present a paper and poster on Sumptuary Laws. Sumptuary Laws, or sumptuariae leges, were a class of ancient Roman laws meant to curb the extravagances of the wealthy, and regulate items and practices deemed a threat to the Roman identity. They first appeared in the late Republic and remained popular, if not effective, into the early years of the Empire (Hornblower, Spawforth 1507-8). All sumptuary laws were created either as a response to perceived cultural necessity, or as key components to the moralistic reforms of a leader. When the sense of necessity for each restriction or the leader who had created them faded away, so too did the laws they inspired.

**Lauren Fulner**

Faculty Sponsor: Patricia English, Communication Studies

The Lived Experience of Student Activism

Abstract: Various scholars have explored components of activism throughout history and across subject lines. This paper will examine the phenomenon of student activism. It begins with a brief anecdote as to personal involvement in activism and then proceeds to a literature review. This analysis of scholarship looks at themes within present literature on student activism, including history, the concept of the left versus liberal, demographics of activists, reasons for protest, and strategies employed by activists. After a brief methods and procedure section that traces the method from qualitative research to phenomenology to the matizing, the paper moves into analysis of fifteen interviews of various individuals involved in activism. This includes themes such as limitations on activism and effective activism. The piece is capped off by exploration of implications of the research and analysis as well as potential for further research in the field.

**Jessie Gabbert, Kate Mathison, and Travis Wayne**

Faculty Sponsor: Karl Larson, Health and Exercise Science

The Effects of Wealth Disparity on HIV/AIDS Treatment in South Africa

Abstract: The wealth disparity in the country of South Africa continuously causes problems in lack of access to treatment of HIV/AIDS, because of the financial barriers for those who are in need of the antiretroviral medication. Wealth disparity also has an impact on lack of education of HIV/AIDS although the South African Constitution states that all youth should have equal access to education. Even though many children do have access to public education, problems are still seen when teachers do not feel comfortable sharing the knowledge, or when teachers do not even have the knowledge necessary to teach preventative and protective health of HIV/AIDS. Lastly, wealth disparities are caused in part by the rule of apartheid in the past, and will continue to affect South Africa in the future because the generation who is most likely to be infected with HIV/AIDS is becoming the leaders of the future.

**Holly Galazen, Joel McGuire, and Bobby Johnson**

Faculty Sponsor: Karl Larson, Health and Exercise Science

### Long Term Implications of Marijuana Use

Abstract: Approximately 25 million people in the United States used marijuana in 2005 (Zvolensky et al, 2009). From a young age, Americans are taught the adverse effects of smoking marijuana, yet many of America's youth continue to experiment or use marijuana on a regular basis. Adolescence to early adulthood is an influential time period, and marijuana use can lead to addictive behaviors, poor decision making, and can negatively affect physical development and long-term health. The negative effects of marijuana on physical and psychological health are clear, yet millions of Americans smoke marijuana each year. Therefore, it is necessary to understand the interplay of perceived risks and benefits which lead to participating in this unhealthy behavior.

**Luke Garrison**

Faculty Sponsor: Peg O'Conner, Gender, Women and Sexuality Studies, Philosophy

### Mothers Making Tenure

Abstract: Through a video documentary, the process of making tenure for college professors was examined. Statistically speaking, many more male professors make tenure than women, and for the women that do, most do not give birth to children. So why is this the case? This is the question that drives the documentary called, "Mothers Making Tenure."

**Kathryn Goodpaster**

Faculty Sponsor: Lisa Heldke, Philosophy

### Cultural Oppression in Post-Colonial Education

Abstract: Today, development organizations led by world powers enact education initiatives. Do they risk acting like colonizers by imposing an ethnocentric system that disadvantages students and degrades culture? Colonialists exported materials and

methods, including education systems. Those systems and pedagogies are still in place today, along with discordant values. Senegal's system (a French influence), emphasizes individual performance and competition between students in a culture with communal values. Pedagogy reflects cultural values, and colonialists valorized their ways of learning and knowing. Discriminatory hierarchy labels culture as unintellectual. This stigma and the disadvantage it causes for students and their culture is cultural oppression. Just education has the responsibility to consult local culture and reflect a positive conception of culture as part of a pursuit of "the good" in education. Pedagogy in just education must have shared identity with local culture, along with consciousness of individual context and humanity.

**Jennifer Grundman**

Faculty Sponsor: Dick Martin, Psychology

Perceptions of Relationships: A Co-relational Study of Tolerance and Finger Length

Abstract: Past research has found that females tend to establish closer relationships with same-sex friends than do males. However, females have been found to have shorter relationships with same-sex friends and engaging in behavior that is threatening to the same-sex relationship. One possible explanation is that females and males have different tolerance levels for irritating behaviors. The evolutionary perspective suggests that women may monitor relationships more closely because of their importance in providing support and security. In this study, male and female college students were administered an inventory which asked them to rate their level of irritation toward roommate behaviors. The second part of the study examined whether the biological marker of index finger length was correlated with subject's ratings of relationship variables.

**Anne Hakes and Alex Neville**

Faculty Sponsor: Bruce VanDuser, Health and Exercise Science

The Effects of Calcium, Iron, Vitamin C Supplementation of Speed, Strength, Flexibility, Blood Pressure

Abstract: The purpose of this study is to examine the effects of three different supplements on physical activity. Twenty recreational athletes will be recruited to participate in this four-week study. Each subject will be randomly assigned to one of four sub-groups in this cross-sectional research design. Each group will be taking a supplement once a day for four weeks. The independent variables are the supplements: vitamin C, calcium, iron, and a placebo. Before the test period and at the end of four weeks, subjects will be evaluated for the dependent variables: blood pressure, one mile running time, one rep max on the bench press, and flexibility. A multi-variant analysis of variance will be used to analyze and determine significant differences in the dependent variables between each of the supplement groups. Expected results indicate that there will be little change in performance.

**Zicheng (Martin) He**

Faculty Sponsor: Patricia Kazarow, Music

### The Bridge That Connects Music and Album Cover Art

Abstract: Album cover design, invented by Alex Steinweiss in 1938, was used not only to enhance the sale of music albums but also to explain visually the music they contained. As the popularity of the LP grew, more and more music lovers began to regard the cover art as a mirror of the whole album. A second stage of this phenomenon occurred when the CD replaced its much larger predecessor. Though now with a more limited surface, the value of the visual cover was not diminished. Today, this importance was strengthened by the Apple Corporation when it invented and since improved the Cover Flow function in the digital music computer software iTunes. This project explores the album cover at each of these stages and thereby illustrates the bridge it forms to the music it markets and reflects.

### **Phillip Helt**

Faculty Sponsor: Kris Kracht, Communication Studies

### Zip-A-Dee-Doo-Dah: A Communication Analysis of SongoftheSouth.net

Abstract: SongoftheSouth.net is a website, launched by Christian Willis in 1999, that is dedicated to preserving the memory of Walt Disney's 1946 film 'Song of the South.' The film today remains locked in the Disney Film Vault, having never been released on video in the United States, because of claims the film is racist. Averaging 200,000 hits a year, the website, however, appears to do more than preserve. Instead, the website is arguing that releasing the film on DVD would not perpetuate racist thoughts, but rather counter racist argumentation. For this project, I sought to determine the effectiveness of the rhetorical messages used by SongoftheSouth.net to change this negative public opinion about Disney's 'Song of the South.' I interviewed the website's creator, formulated a research question, performed an in-depth communication analysis by applying George N. Dionisopoulos and Steven R. Goldzwig's theory of revisionist history, and drew critical implications of the website.

### **Molly Hillenbrand**

Faculty Sponsor: Stephanie Otto, Health and Exercise Science

### Effects of Preferred and Non-preferred Music Genre on Sub-maximal Cycle Performance among Collegiate Athletes

Abstract: Eliakim, Meckel, Nemet, and Eliakim (2007) discovered that athletes who listened to music during a warm up performed better on an anaerobic power assessment. The purpose of this study was to examine the effects of preferred and non-preferred music genre on performance. Participants included male and female athletes between 18 years - 23 years. Each participant was questioned about music genre preference. Prior to testing, participants completed an acclimation session to get accustomed to the exercise bike and rating of perceived exertion (RPE) scale. Dependent variables were heart rate

(HR), systolic blood pressure (SBP), and distance cycled in kilometers. A paired sample  $t$  – test was used to determine differences ( $p \leq .05$ ) between each music condition. Results showed that resting and post exercise SBP were significantly higher among females during the preferred music genre condition. No differences were found among males.

### **Joseph Hillman**

Faculty Sponsor: Lisa Heldke, Philosophy

#### Disagreement on Rights: Clarification for Social Progress

Abstract: I propose that such frequent disagreement about the implications or importance of rights stems from the lack of uniform agreement or existing legal definition as to the origins of rights themselves. Political documents state what rights a human or other thing may have, but leave citizens free to choose their own notion of where these rights come from, and to make their own choice as to which things deserve rights. This gray area allows for people to create their own separate, justified, and often incommensurable opinions and beliefs based on unrelated modes of thought, and creates political discord and confusion. I will research to describe rights existence in an international body, their value, origin, and to outline a tentative criterion to determine which objects fall under rights jurisdiction. This project's aim will be to clarify an existing legal concept's origins to make disputes in various fields more easily negotiated.

### **Laurel Hoch**

Faculty Sponsor: Lisa Heldke, Philosophy

#### A Theory of Aesthetic Appreciation: Viewing Artistic Images as an Interactive Experience

Abstract: Within the world of images there is a relationship worth our attention. Certain images, paintings by Jean-Michel Basquiat and magazine advertisements are useful in this explanation. Independently and obliviously viewing a painting or an ad and having a closed off reaction, quick responses without questioning or examining, does not take advantage of an interaction between the viewer and artist (or producer of image.) Instead of this one-sided, isolated, non-challenging experience between you and the image, I propose there is more to be gained when we experience artistic images as partaking in a relationship. There is a cycle and interaction between the viewer and artist and artist and viewer to be had. When our experience with artistic images diverge from being an independent viewing to being experience as an interaction, our identities and pre-conceptions of images, viewers, and artists/producers are tested. I plan to present the three phases of this cycle we must in some way go through, two images to help examine this process (painting by Basquiat and an ad for Vanity Fair,) and what in effect our experience of viewing art/images as an interaction has the potential to bring.

### **Leah Hogdal**

Faculty Sponsor: Margaret Bloch-Qazi, Biology

## Response to Oxidative Stress Occurs At The Expense Of Early Stage Progeny Production in *Drosophila Melanogaster*

**Abstract:** Oxidative stress, the result of an imbalance between reactive oxygen molecule production and antioxidant formation, has been implicated in aging, carcinogenesis and mutagenesis. Previous studies using the fruit fly, *Drosophila melanogaster*, have examined the negative relationship between female reproduction and her ability to respond and overcome oxidative stress. However, none have examined the effect of oxidative stress on the females's ability to maintain normal reproductive status. To address this gap in our understanding of female stress responses, this study used a stress resistant mutant, *methuselah*, to examine trade-offs associated with resource allocation between responses to oxidative stress and reproduction. I found that females, regardless of genotype, subjected to oxidative stress produce fewer progeny in the first two days of progeny production than did unstressed females. Furthermore, stress-resistant (*methuselah*) mutants exhibited a smaller depression in fertility in response to stress suggesting an early fertility trade-off between somatic repair and reproduction.

**Jake Holsten and Andre Mutschler-Supple**

Faculty Sponsor: Kyle Chambers, Psychology

## Perception of Intelligence of Authors When Using Mostly Simple or Complex Words

**Abstract:** Previous research has shown that when authors deliberately increase the complexity of their words in writings their perceived intelligence decreases (Oppenheimer 2006). This is believed to be caused by fluency, meaning complex words are difficult to read and understand which than causes lower ratings. In this experiment students and professors perceived intelligence ratings of authors will be compared by distributing short papers for them to read. The students and professors are asked to judge the readings on a 1-10 scale on how intelligent the author is. Some of the readings will have many complex words and some will contain mostly simple words. There are three levels of complexity, which are low, medium, and high. Our hypothesis is that the students will rate the author's intelligence much lower when the words contained in the readings are more complex. Also the professors will rate the author's intelligence similar in both complex papers and the simple papers.

**Sophie Horton**

Faculty Sponsor: Kris Kracht, Communication Studies

## The Importance of Acting on Ones Concern: Speeding on Riverside Drive

**Abstract:** My research involved the issue of speeding in my hometown, specifically on the street that I live. Therefore for my project I decided to attack this issue and devise a way to slow or inevitably prevent speeding on my street. My project began as a struggle as an eighteen year old trying to stop speeding, most people have a hard time taking you seriously, yet after numerous attempts of contacting police I decided to fly home and

meet with the Chief of Police himself. It took a lot of organizing and planning but the outcomes were miraculous! My street now has four new signs implemented on it, two "slow children at play" signs and two new speed limit signs! I plan to present my work as well as the outcomes I achieved; my project is a great example of how important anyone's opinion is on an issue!

**Laine Hudak**

Faculty Sponsor: Henry Hays, Economics and Management

U.S. Health Care Reform: A Government System versus Universal Coverage

Abstract: The United States has the second highest spending on health care as a percentage of GDP in the entire world, but in spite of this there are millions of uninsured or underinsured Americans going without proper medical care. Politicians and humanitarians have proposed many solutions, often modeled on systems in place in other developed nations. These systems fall into two broad categories: a government system, where all services are covered entirely by the government; and universal coverage, where the government requires all individuals to carry a basic level of health insurance. This research will compare and contrast these two approaches to health care reform in the U.S., and highlight some of the most effective elements from each that could be successfully implemented in the U.S.

**Pauline Jackson**

Faculty Sponsor: Margaret Bloch-Qazi, Biology

You Mean I Came All This Way For Nothing: An Investigation of Potential Sperm Storage Mutants in *Drosophila Melanogaster*.

Abstract: Female sperm storage, the retention of sperm within the female reproductive tract, has a number of essential roles in fertility and provides several evolutionary advantages to both male and female organisms. However, female sperm storage remains poorly understood. *Drosophila melanogaster* is an excellent model system for studying female sperm storage due to its easily manipulatable genetics, large number of sperm stored, duration of storage, and efficiency of fertilization. Previous genomic screens have identified a small number of genes with potential sperm storage effects; included in these are CG5825, CG7296, and CG10746. Using a genetic approach, I examined mutants for each of these genes via daily progeny and egg counts. The results of this study clarify the roles of these genes in female sperm storage and increase understanding of this crucial developmental process.

**Catherine Jacobs**

Faculty Sponsor: Andrea Gross, Theater/Dance

Research and Development of a Historical Garment

Abstract: I have selected a historical garment from the collection held by the Theatre and Dance department. I will recreate this garment in several steps. I will use a process called draping to develop the garment pattern. From the pattern I develop I will make a mockup garment to check size and fit, then move on to the final garment. I will also be doing research to determine which period the garment is from and to determine who would have worn it and what type of occasion it would be worn for. I plan on presenting the finished garment, photos documenting the steps taken in the process, and the research I did to determine when the original made, who would have worn it, and why.

**Amanda Johnson and Katherine Schenfeld**

Faculty Sponsor: Bruce Van Duser, Health and Exercise Science

The Relationship among Strength, Flexibility, and Balance on Distance and Accuracy in Male College-age Golfer

Abstract: relationship among strength, flexibility, balance, distance, and accuracy of a golfer's shot. Twenty college-aged men from Gustavus Adolphus College are the participants in this study. This study uses a co relational design to examine similarities among the dependent variables. The dependent variables include leg strength, back strength, hand grip, pull-ups (bicep strength), push-ups (tricep strength), sit-ups (abdominal strength), sit-and-reach (hamstring flexibility), shoulder flexibility, wrist flexibility, hip flexibility, trunk flexibility, balance, distance, and accuracy. Data is analyzed using the Pearson Product Co relational Analysis. A co relational co-efficient of  $\geq 0.80$  with an alpha of  $\leq 0.05$  will indicate significant relationships. The expected results will indicate that that strength, balance, and flexibility are all important factors for greater distance and accuracy.

**Alex Jones**

Faculty Sponsor: Leila Brammer, Communication Studies

The Rhetoric From Within

Abstract: My paper explores the art of rhetoric. Rhetoric is the art of persuasion and depends on intelligent use of our most vital faculty's the mind. I analyze a rhetorical event that had a large impact on my own life when I read the book entitled, Mind Gym, which is about how your mind influences your athletic performance as much if not more so than your physical skill. I analyze how this rhetorical artifact influenced my mental approach to the game of tennis as well as towards life. I employ Ernesto Grassi's theory of folly to show how rhetoric will apply to my life after Gustavus and develop my own symbolic creation of a destiny-reality theory, which believes a person's reality is a result of their decision making processes and how the use of symbols and rhetoric is involved in the process of an individual's construction of reality through their decisions

**Kendra Kesty**

Faculty Sponsor: Joel Carlin, Biology

## Agrochemicals, their Breakdown Products, and Aquatic Organisms

**Abstract:** The purpose of this project was to develop protocols to systematically observe and document effects of an agrochemical and its breakdown products on aquatic organisms. We studied the compound dimethenamid, found in the herbicide Frontiers, because it has a relatively high toxicity and concentration in the Midwest. We exposed dimethenamid and its breakdown products to two small vertebrates, fathead minnows (*Pimephales promelas*) and zebra fish (*Danio rerio*), using different methods and analyzed the tissue to look for gross anatomical changes after each exposure.

**Brandon Knoll, Jason Ek, and Maria Siegle**

Faculty Sponsor: Karl Larson, Health and Exercise Science

## Smoking Today and the Effects on Cessation Rates, Health, and the Economy

**Abstract:** The habit of smoking has broader implications than those just on the smokers themselves. Recent smoking bans have tried to curb the effects of smoking on the public, resulting in numerous studies on the results. Better known is the effect of smoking bans on the intake of secondhand smoke, but lesser-known and less researched is the effect on cessation rates and the economy. This study details how the smoking bans have affected businesses, increased the quitting rate, improved overall health in non-smokers, and also how other supplementary initiatives like tax increases will compliment the bans. This study draws upon the primary objectives of Healthy People 2010, a government initiative to increase the quality and quantity of life while reducing health disparities, and how recent smoking bans relate to those objectives.

**Joshua Knutson**

Faculty Sponsor: Michael Hvidsten, Math and Computer Science

## Implementing Loop's Bicubic Patch Approximation of Catmull-Clark Surfaces

**Abstract:** In recent decades, subdivision surfaces have become increasingly important as an alternative representation of three-dimensional surfaces in computer graphics. Subdivision surfaces are defined by a coarse mesh of points and edges, which is then progressively refined by subdividing the mesh according to a set of rules. While they allow for flexible, smooth models to be created from simple meshes, they are inefficient to implement on current graphics hardware. Recently a more efficient solution, using Bezier patches to approximate the subdivided surface, has been proposed, but no implementation is publicly available. This paper will present and discuss such an implementation.

**Krista Koenen, Emma Espel, and Alex Prieve**

Faculty Sponsor: Kyle Chambers, Psychology

## Analyzing the Effect of the Stroop Test on Primary and Unknown Languages

Abstract: This experiment will look at how we process language and words by using a modified Stroop test. The participants in this experiment will perform a version of the Stroop test where they will switch between words written in their primary language to words written in an unknown language. Their response times will be analyzed to identify whether an unknown language has the same effect as the primary language. We would expect that participants will respond faster to words in an unknown language compared to their primary language, because they do not have the interference that is associated with the primary language.

**Marlene Kvitrud**

Faculty Sponsor: Julie Gilbert, Library

Examining the Gustie Virtual Library Space to Increase Knowledge Access

Abstract: I compared the Folke Bernadotte Memorial Library's website with thirteen library websites from the Oberlin Group of Libraries. I wanted to see how the selected Oberlin College Libraries promoted and provided information, especially related to their electronic databases. The observations mostly consisted of website differences. These included the website's available guides and tutorial, access to librarians, and resource labels. Although the Folke Bernadotte Memorial Library's website has many positive qualities, I suggest that the website includes more resources, like those given during established workshop sessions.

**Kathryn Ladig**

Faculty Sponsor: Laura Triplett, Geology

Geomorphology of Naran Khondii, Hoh Serh Range, Mongolian Altai, Western Mongolia

Abstract: Naran Khondii is a glacially formed U-shaped valley in the Höh Serh range of western Mongolia. Field research was conducted within the drainage of the valley to map and describe geomorphological landforms and constrain past glacial extent. GIS analysis of moraine locations, DEM images, and SPOT aerial imagery yielded glacial reconstructions for last glacial maximum and neoglacial advances. These reconstructions showed that the surface area of the modern glacier has decreased by 78.97 percent since the Last Glacial Maximum in the late Pleistocene, 51.30 percent since the neoglacial period, 37.89 percent since the Little Ice Age, and 4.31 percent since the SPOT imagery was taken in 2007.

**Gretchen Libbey and Brianna Otis**

Faculty Sponsor: Barbara Zust, Nursing

Exploring Perceptions among Spanish Speaking Patients Regarding Health Care Satisfaction and Interpreter Use

Abstract: The inability to verbally communicate at a basic level with health care providers impacts a patient's ability to receive effective, appropriate health care. Spanish-speaking-only patients and those with limited proficiency in English often require an interpreter in health care settings in the United States. Although numerous studies have established the necessity of interpreters, there are no known studies that explore the patients' perceptions of their experiences in using an interpreter to communicate their health care needs. The purpose of this study is to explore Spanish-speaking patients' perception in using a n interpreter to communicate their needs in a health care setting. Following IRB approval, Spanish speaking participants were asked to rate on a 1-5 Likert scale involving various aspects of interpreter satisfaction in a health care setting. It also included 2 open ended questions providing cultural insight. Data collection is currently on-going. Preliminary analysis indicates respondents report minimal to moderate satisfaction.

**Yuan (Timo) Lin**

Faculty Sponsor: Martin Lang, Communication Studies

Video Autobiography: The Experience of Being an Outsider

Abstract: It is a project for COM265 Video Representation class. The work I'm going to show is an autobiographic video about the experience of being an outsider. The story is real and original; and the video is shot, edited completely by myself. The video is not only about the story itself, but also the techniques and video effects being used in the project as well as the artistic way of telling the story.

**Yuan (Timo) Lin, Jeremy Kuhn, Kelly Bower, Natalie Brady, Chelsea Kramer, John Lecy, Peter Nygren, Abigail Overman, Alexandra Parker, Jenna Rusnacko, Kelly Sparks, Lacey Squier, and B.J. Wangenstein**

Faculty Sponsor: Martin Lang, Communication Studies

PSA's (Public Service Announcements) About Avoiding Drunk Driving

Abstract: This presentation is about our projects for Video Representation (COM265) class in fall 2008. We are going to present the PSA's (Public Service Announcements) we made for avoiding drunk driving. There are totally 8 PSA's, including two campaign themes; one is "Don't Drink before You Drive", and the other is "Smart Suggestion". "Don't Drink before You Drive" includes four 15-second PSA's, while "Smart Suggestion" includes four 30-second PSA's. They are created, shot, edited and finally produced by the class.

**Matt Lindholm**

Faculty Sponsor: Mark Bjelland, Geography

Apportionment of Congressional Districts

Abstract: I plan on presenting current demographic and population's shifts in the United States which ultimately result in congressional reapportionment. Furthermore, I will explain what exactly congressional apportionment is and what it means for our nation. In addition, I will be presenting on how reapportionment will affect Minnesota. In short, I will illustrate how states will gain, lose, or stay neutral in terms of congressional seats as well as if the current system changed, what would be the result. This geographic concept will be heavily based upon the 2008 elections and US Census data.

**Angela Magnusson**

Faculty Sponsor: Joel Carlin, Biology

Biological Integrity in Seven Mile Creek Based on Benthic Macro Invertebrate Families

Abstract: Seven Mile Creek watershed, located within the Middle Minnesota River Basin, is unique in that 86% of it is utilized for commercial agriculture. A concern for local aquatic health is cultural eutrophication, the overgrowth of algae and subsequent decline in biodiversity by excessive use of agricultural fertilizers. One indicator for overall health of a water resource is the total abundance and diversity of aquatic macro invertebrate species. A family biotic index (FBI) was developed based on benthic macro invertebrate collections gathered from five physically varying sites in Seven Mile Creek. Differences among sites included extent of channelization and ditching, types of adjacent vegetation, and light penetration in the sampling area. Applications of this study include an implementation of annual FBI monitoring in Gustavus Adolphus College courses and comparisons of Seven Mile Creek to other watersheds within the Middle Minnesota Basin.

**Angela Magnusson**

Faculty Sponsor: Mark Bjelland, Geography

Civic Agriculture and the Role of Community Gardens in Refugee Resettlement

Abstract: Every year, Minnesota welcomes thousands of refugees from across the globe for resettlement. In fact, the state accounted for 12% of refugee arrivals in 2005, putting it behind California as having the second highest rate of resettlement. Upon arrival in any state, however, issues arise that make it difficult to find one's identity in a new place. In this study, I will analyze how community gardens in Minnesota can assist in the resettlement process. First, I will analyze present difficulties in the resettlement process of refugees. Then, drawing from the writings of Wendell Berry and other agrarian thinkers, the benefits of gardening will be reviewed to determine if they apply to problems of recent refugees. Through a series of personal interviews, surveys, and a small-focus group, I will explore the attitudes and experiences of community garden participants from all backgrounds. The potential application of this study is to encourage not only recent immigrants to participate in civic agriculture but also long-term members of the community so as to build a stronger sense of place and community amongst everyone.

**David Mann**

Faculty Sponsor: Patricia Kazarow, Music

**The Rise of the *Ars Subtilior*: Anachronism or Natural Progression?**

Abstract: Nestled snugly between the *ars nova* and beginning of the Renaissance, the *ars subtilior* today remains one of the curiosities of music history. During a relatively short period of time, new developments in notation, melody, and especially rhythm fueled a new, extremely complex style of music that seemingly bloomed overnight, and disappeared just as quickly. Commonly, the musically disparate *ars subtilior* is viewed as an anachronism: a thing curiously out of place and time. But could this unique musical style truly arise from nowhere? A closer look at the religious, mathematical, philosophical, and political life of the late fourteenth century will reveal that while the *ars subtilior* is remarkable, it is not anachronistic but rather a natural product of the intellectual milieu of the time.

**Rhea Muchalla**

Faculty Sponsor: Lisa Heldke, Philosophy

**A Binding Culture**

Abstract: In discussing the way feminist theory engages with culture, it is important to investigate the way women and culture inform each other in a multicultural place, like the United States. First, I propose that in our daily lives culture operates as a binary system. That is, there are those seen having culture and those seen without it. Secondly, in a patriarchal society constructing culture in this binary fashion fully supports a patriarchal, oppressive structure. Patriarchy, as well as racist, homophobic, and classist attitudes, all rest on a binary system of 'self' and 'other'; this cultural binarism is another outgrowth of the 'self/'other' dichotomy that supports systems such as ethnocentrism, racism, and even sexism. Therefore, women who are deemed one's 'with culture' are put into a particular double-bind. This bind must be explored and expounded upon in order to find forms of resistance.

**Laura Natwick and Ashlee Oldani**

Faculty Sponsor: Barbara Zust, Nursing

**Exploring Stress as Perceived by Pregnant Women in Urban and Rural Healthcare Settings**

Abstract: Stress can greatly impact one's well-being by increasing blood pressure, reducing coping mechanisms, and ultimately threatening one's homeostasis. Pregnancy adds both emotional and physical stress for the pregnant woman. However, there are no known studies that explore different perceptions of stress among pregnant women who live in the rural area vs. urban area. The purpose of this study was to explore stressors perceived by pregnant women who delivered in a rural hospital and pregnant women who delivered in an urban hospital. Findings indicate that labor and delivery concerns are

associated with the woman's concern for her physical self. Overall stress affects labor and delivery concerns. Social concerns have a large impact on a pregnant woman's overall stress throughout the perinatal period. Further analysis is under way.

**Jeff Nichols**

Faculty Sponsor: Lisa Heldke, Philosophy

Moral Fiction: Prescription versus Engagement

Abstract: Fiction can often times be a moral experiment. Author's construct the experiment and the reader's test it out. I would like to categorize two types of fiction dealing with ethical sentiment: some that prescribes ethical belief and some that engages in ethical discussion. My object is to consider these categories as they define specific qualities in a work of moral fiction. Qualities like character development and narrative structure define the ethical discussion taking place between author and reader in the narrative space. My argument is that works of fiction (or qualities therein) that tend to prescribe conclusive ethical belief, rather than engage the reader in forming their own conclusions, limits the reader to more shallow sentiment. With this project I intend to consider two works by Nadine Gordimer and J. M. Coetzee; two South African writers (an expatriate in the latter case) linked in context but divergent in style.

**Rachel Ogilvie and Christine Reimer**

Faculty Sponsor: Barbara Zust, Nursing

Comparing anxiety aspects between junior and senior nursing students

Abstract: Anxiety is one of the key characteristics that is involved in every nursing student's life. The purpose of this study is to compare anxiety levels and causes of nursing students in their junior year compared to their senior year. The results of this research will add to the body of knowledge that guides practice in nursing education as well as assist future nursing students in preparing for nursing school. The participants that we have selected for this research are the junior and senior nursing classes at Gustavus Adolphus College in St. Peter, MN. The students have been asked to participate and fill our two questionnaires. The first one being the Spielberger's State-Trait Anxiety Inventory for Adults and the other being a short survey asking questions specifically related to the nursing level of education and the students future nursing experiences.

**Ashley Ohlson and Scott Broady**

Faculty Sponsor: Kyle Chambers, Psychology

The Effect of Gesture on Comprehension

Abstract: Our research will seek to understand the effect of gesture on comprehension. Participants will be given a presentation either with or without gesture and then asked to perform a task to evaluate their comprehension of the presentation. Results will be determined by the participants' responses.

**Vwaire Orhurhu**

Faculty Sponsor: Brenda Kelly, Chemistry

**An In-Vitro Study of Tol2 and Hermes Transposase**

Abstract: Transposase excises transposons from DNA, and then inserts them into a new DNA site. This mobilization, "transposition," is an effective tool for gene discovery and permanent delivery of foreign DNA into the vertebrate genome, including germline transmission in zebrafish. However, the biochemistry of transposition is largely unknown. We have studied the biochemistry of transposase-mediated integration for two members of the hAT transposon family, Tol2 from the medaka fish, and Hermes from the housefly. We hypothesized that Hermes would similarly catalyze the insertion of kanamycin DNA fragments without ITRs into target plasmids. Plasmid DNA isolated from kanamycin-resistant cells was sequenced to verify kanamycin integration, and to assess whether the gene integration reactions were due to Hermes-catalyzed transposition. Our results suggest that (1) Hermes transposase can integrate pre-cut kanamycin fragments without ITRs into target plasmids in vitro; and (2) there were no statistical differences in the transposition frequency of Hermes and Tol2 transposase.

**Ally Pelton**

Faculty Sponsor: Martin Lang, Communication Studies

**Devil with a Cause**

Abstract: My research will essentially be a narrative analysis of bridal media. Focusing on WE-TV's hit show, Bridezillas, I will take note of bridezillas behavior on that show and discuss the representations that ensue. The main idea of the paper I'm basing my thesis off of is that brides want to struggle during the process of their wedding planning because it gives them a sense of purpose. Some ideas Martin and I have discussed include comparing the show Bridezillas to other bridal media outlets, like bridal magazines. We have also discussed using bridal blogs to see how "average American women" view bridezilla behavior in themselves or friends.

**Nate Peterson**

Faculty Sponsor: Henry Hays, Economics and Management

**Creating Jobs: The Best Stimulus Policy**

Abstract: Unemployment in the United States in February 2009 was at 8.1 percent, which is the highest rate since 1983. Consequently, the U.S. government has recently passed a \$787 billion stimulus package to create jobs and get the economy moving again. Components of this stimulus package include infrastructure spending, education, health, and energy spending, money for state and local governments, funds for extending unemployment, food stamp benefits, tax cuts for businesses, and tax cuts for individuals. This research project attempts to rank these components in terms of the immediacy of

their impact as well as the size of the multiplier effect they will have on the creation of jobs in the economy. This will reveal the priority that should be given to each component.

**Caleb Phillips**

Faculty Sponsor: Lisa Heldke, Philosophy

Clarity and Opacity: an Ethical Examination of Transparency, Control, and Utility of Information and Resource Systems

Abstract: Systemic enclosure of shared information resources has led to more and more information becoming inaccessible. Those who previously worked with the information for specific crafts are now denied the means to develop their expertise and innovate within their fields. These limitations stagnate the fruits of scientific dialogue, cultural arts, and technical development. In response, various disciplines are developing transparent information systems that reopen these commons for public use and cooperative management. I argue that these new strategies for managing information share a noteworthy ethical position despite having various origins that are in opposition to the growing power of privatization. This "open information" position challenges the political dominance of late capitalism and the empowerment of corporate ownership that presently debilitates the commons. These transparent information management alternatives reinstate a reservoir of information; this reservoir, in turn, provides fuel for cultural, technological, and practical creativity and use.

**Jason Pitt**

Faculty Sponsor: Sanjive Qazi, Biology

Expressing Concern for Gene Expression

Abstract: Biomedicine is on the verge of clinically implementing many promising genomic technologies. One of these, gene expression (GE), can measure the relative amounts of all 20,000 + human genes being produced by a particular cell type. GE has the potential to be widely used in both disease diagnosis and prognosis. However, along with its promises, there are also reservations. GE studies encounter difficulties with statistical analysis and predictive legitimacy. Also, the provisions of the Genetic Information Nondiscrimination Act do not protect GE data, which indicates a potential for patient discrimination. To analyze the effects of these and other factors on patient decision-making, a model-based survey was distributed to obtain the opinions of various cohorts on GE assays. The results were used to construct a Bayesian behavioral model that predicts a patient's willingness to undergo GE analysis based on their responses to ethical, social, and scientific questions.

**Jason Pitt**

Faculty Sponsor: Sanjive Qazi, Biology

My? Genome: The Co-Evolutionary Battle between Humans and Retroviruses

Abstract: Humans and mice have 99% homology between their DNA coding regions. However, only 48% of human and 13% of mouse non-coding transposable elements (TEs) share identities. Researchers are now analyzing how alterations in non-coding regulatory regions caused by TE may have contributed to the evolution of organisms. 8-10% of TEs are from ancient retroviral DNA. While many of these retroviral sequences are no longer capable of producing a provirus, the transposable nature of these DNA segments is also thought to have contributed to the phylogenetic divergence of species. Furthermore, retroviral TEs can contribute to gene regulation changes that can lead to oncogenic transformation and cancerous disease states. Through the analysis of breast cancer gene expression data with bioinformatics tools such as BLAST, RetroTector, and NetAffx, we hope correlate the presence of specific viral sequences with altered genetic phenotypes.

**Haley Prittinen, Anna Bauer, and Cory Kasprzak**

Faculty Sponsor: Amanda Nienow, Chemistry

#### Analysis of the Cost Effectiveness of Various Fuels

Abstract: By calculating the heats of combustion for four types of fuels (unleaded, E85, diesel, and biodiesel) using constant-volume bomb calorimetry, the comparative effectiveness of the fuels was examined. Using a car that gets thirty-two miles per gallon on regular unleaded fuel as a model system, the miles per gallon travelled on each fuel were calculated. This data was then used to determine the costs of driving a car with each of the fuels, and it was determined that biodiesel was the most cost-effective of the fuel types.

**Jenny Pusch**

Faculty Sponsor: Jill Locke, Political Science

#### Democratization of the Family from a Feminist Perspective: A Radical, Socialist, and Liberal Approach

Abstract: The object of this paper is to explore the democratization of the family from the perspective of three significant groups of feminist politics. Radical, socialist, and liberal feminism will be explored in this paper including a brief overview of each group's political beliefs and how they define the family. In addition, the political concept of democracy will be explored as recorded by political analysts of both feminist and non-feminist political groups. It is the aim of this paper to dissect what democratizing the family means and how best it should be approached in a feminist manner. After exploring three specific facets of feminist politics, I seek to argue that the liberalist approach to democratizing the family is both the most appropriate and strongest way to ensure equality and freedom in families in modern democratic societies, despite the encroachment it may have in the private sphere.

**Anders Ringdahl-Mayland**

Faculty Sponsor: Sujay Rao, History

Hoodoo: Revolution, Exodus, and the Legacy of the African Diaspora in the U.S.

Abstract: In the fall of 2008 I undertook the writing of a thesis about Hoodoo, and African American means of "transforming reality." In this paper, advised by Professor Sujay Rao, I sought to draw connections between Hoodoo and the 1809 migration of thousands of Haitian refugees from Haiti to Cuban, and then Louisiana following the Haitian Revolution. I plan on presenting the primary principles of my argument using visual aides that contextualize the African diaspora, and other important historical events that led to the development of Hoodoo, and other syncretic belief systems in the U.S.

**Rachel Rongstad, Matt Benson, and Megan Hoeft**

Faculty Sponsor: Karl Larson, Health and Exercise Science

Asthma: Why Is There An Increase In Hospitalization?

Abstract: The focus of attention of this project is a recent increase in hospitalization due to asthma. According to the Center for Disease Control, in 2005, an estimated 32.6 million Americans had been diagnosed with asthma during their lifetime. In 2002, an estimated nearly fifteen million school days were missed for children ages five through seventeen due to asthma. This shows that asthma can cause complications within our society. The writers of Healthy People 2010 have set a target goal of 80 per 10,000 people needing emergency hospital care in children under five. Therefore, to reduce these negative statistics and risk factors, the focus on decreasing the number of hospital visits needs to be met.

**Heidi Rossow**

Faculty Sponsor: Sarah Wolter, Communication Studies

City Wide Instrument Collection

Abstract: I had a city wide instrument collection in my hometown to give children an opportunity to be involved in music who can't afford otherwise. I did a lot of promoting for the event by placing one hundred twenty signs up at businesses and restaurants. I also put a message up on two bank screens, and a message in two church bulletins. I wrote a letter to the editor of the newspaper and as a result an article was printed to promote the event more. I had the chance to speak on the local radio station telling about the event and trying to get as many people to come. At the event the newspaper came and took pictures for the following day's newspaper. By the end I collected thirty instruments. I will be having a poster and showing my binder from Public Discourse.

**Nikki Rusinko and Jenna Zimmer**

Faculty Sponsor: Michele Koomen, Education

Settling the Chaotic Classroom

**Abstract:** This paper reports on a phenomenological study regarding an attempt to understand the challenges faced by novice teachers as they try to establish their role as teacher in a primary classroom. The study describes the experiences of two preservice teachers who team-taught in a multiage classroom for five weeks in the fall of 2008. We collected data through qualitative methods by reviewing videotaped lessons, interviews, discussions with one another, and discussions with our cooperating teacher, and field notes. The data analysis offered a means for deep reflection of our teaching methods. Our analysis points out the importance of establishing both behavioral and academic expectations for students and establishing a rapport with students as the teacher and not as a friend. Our study has implications for future preservice teachers as they work at establishing themselves as the authority in their classrooms.

**Heather Rusk**

Faculty Sponsor: Margaret Bloch-Qazi, Biology

**Hold On! Female Control of Sperm Use in *D. Melanogaster***

**Abstract:** The balance between males and females in reproduction has influenced many strategies, including the female ability to store sperm. Although the techniques utilized by males to gain the upper hand, little has been done to determine what females can do to exert control over reproduction. Previous studies have examined one such technique, the last-male-advantage, in which the last male to mate sires more progeny than previously mated males, due to the ability of the last male to displace sperm from previous males. Using the model organism, *D. melanogaster*, we examined the female's ability to manage sperm use by altering the frequency of transfer to fresh media. We further challenged her ability to manage sperm stores by mating her with a second male and analyzing subsequent patterns of sperm use. Females exposed daily to fresh media depleted their sperm stores more quickly than those transferred on longer intervals, demonstrating female control over the rate of sperm use. Further data will examine whether females are able to counter the last-male-advantage based upon progeny production.

**Heather Rusk**

Faculty Sponsor: Margaret Bloch-Qazi, Biology

**Regulation of miRNA Biogenesis in Embryonic Stem Cells**

**Abstract:** MicroRNAs (miRNAs) are small regulatory RNAs that suppress the expression of their target genes. The miRNA biogenesis pathway involves the sequential processing of primary miRNA transcripts (pri-miRNAs) by the Microprocessor complex to release 60-70nt precursor miRNAs (pre-miRNAs) that are cleaved by Dicer to yield mature 22nt miRNAs. The let-7 family of miRNAs regulates stemness by repressing stem cell self-renewal and promoting differentiation during normal development, and has been implicated in breast and lung cancer. The RNA-binding protein Lin28 promotes pluripotency and negatively regulates let-7 expression by inhibition of Microprocessor-mediated processing of let-7 precursor miRNAs. Paradoxically, unlike the nuclear

Microprocessor complex, Lin28 is reportedly localized to the cell cytoplasm. We analyzed Lin28 subcellular localization in ES cells and found Lin28 in nucleoli, leading to an investigation of the mechanism of Lin28 function.

**Claire Sagstuen**

Faculty Sponsor: Kristofer Kracht, Communication Studies

The Effectiveness of Carnavalesque Protest in a Post-9/11 Era in America

Abstract: For my research I examined an artifact called "The Water board Thrill Ride" that was shown in Coney Island in August 2008. My research question was as follows: Is the Waterboard Thrill Ride's form of carnivalesque protest enhancing the debate on water boarding as a form of torture? I then applied a communication model entitled Carnavalesque Protest and the Humorless State published in the April 2005 Text and Performance Quarterly by M. Lane Bruner. After describing the theory's four tenets (Critical Inversion of All Official Words, Suppression of Roles, Positive Degradation and Creative Disrespect, and Retexualizing of Social Formations) I apply them to the artifact to see if the tenets are fulfilled. Then after applying the theory I answer my research question. This helps to lead to my conclusion where I discuss two critical implications about American society dealing with both carnivalesque protests and protests in general in the post-9/11 era.

**Jason Schultz Alexander Burum**

Faculty Sponsor: Brian O'Brien, Chemistry

Preparation of Fluorous Ponytail Primary Phosphines via Phthaloylphosphide Ion

Abstract: Potassium phthaloylphosphide [K<sup>+</sup>][o-C<sub>6</sub>H<sub>4</sub>(CO)<sub>2</sub>P<sup>-</sup>] has proven to be a versatile reagent for preparation of P-substituted derivatives either by direct reaction (alkyl halides, pentafluorophenyl halides) or by irradiation with 420 nm blue light (CF<sub>3</sub>CH<sub>2</sub>I). Here we describe the preparation of fluorous ponytail phthaloylphosphines and their further transformation into primary phosphines (RfCH<sub>2</sub>CH<sub>2</sub>-PH<sub>2</sub>). Characterization of the phthaloylphosphines and primary phosphines, along with details of preparation and further transformation, will be discussed.

**Andy Sharp, Sara Cammack, and Paul Kirihara**

Faculty Sponsor: Karl Larson, Health and Exercise Science

Obesity in Ethnic Backgrounds

Abstract: Obesity or being overweight in America is one of the leading factors in several preventable causes of death. Our mission is to investigate cultural differences concerning obesity in between different ethnic groups in America. The Health People 2010's objective for the issue obesity is to reduce proportion of children, adolescents, and adults who are overweight or obese, which means that no matter their skin color or what cultural background they come from, the U.S. is in need to decrease the amount of obese people

across the U.S. African and Hispanic American cultures are similar and different in the factors, which contribute to obesity, specifically diet, physical activity, and social acceptance. The implication of the findings is that a different approach needs to be taken other than standard methods for treating obesity.

**Kate Sidlo and Jordan Hawkinson**

Faculty Sponsor: Deb Pitton, Education

NYSP Impacting the School Lives of Its Campers: Walking Tall, Talking Tall, Standing Tall

Abstract: This study addresses the need for the National Youth Sports Program (NYSP) at Gustavus Adolphus College to have statistical evidence to support the impact and effectiveness of the program. The study provides two views of student populations. The first consists of 40 students who have been enrolled in the NYSP program for 3 consecutive years through 2007. The design of this study is a retrospective, observational investigation into the impact that NYSP has on campers. The difference in GPA of students before and after participating in NYSP is slightly above 0. Attendance records show no significant change from participating in the program. The second population consists of 5 parents of students from the first population. The design of this study is an interview on the impact of NYSP according to parents. The parents agree a positive difference occurs in students after participating in NYSP.

**Scott Simpkins**

Faculty Sponsor: Dwight Stoll, Chemistry

Optimization of Column Choice for Three-Dimensional Liquid Chromatographic Trace Analysis of Triclosan in River Water

Abstract: Detection and quantization of compounds at trace level concentrations (ng/L) within complex mixtures is increasingly important in many fields of science. This type of analysis requires large amounts of separation power, which cannot be provided with conventional one-dimensional chromatographic separations. Multidimensional separations utilize multiple conventional separations to greatly increase separation power of a single analysis. We are developing a multidimensional separation technique called heartcutting three-dimensional high performance liquid chromatography (h3D-HPLC) to separate triclosan from the components of river water and quantify it at concentrations as low as 50 pg/mL. Triclosan is a common antimicrobial agent and a contaminant in local rivers. Of vital importance to this three-dimensional separation is the selection of columns that can separate compounds not separated by the other columns. Initial work has involved evaluating the complementarity of several commercially available HPLC columns in separating triclosan from compounds in river water.

**Anthony Spain**

Faculty Sponsor: Jill Locke, Political Science

## The Republican Mother: Woman's Role in Moral Education and Reshaping of the Public Sphere

**Abstract:** Liberal political theorists have constructed a state that seeks to affirm positive liberty of citizens while respecting the boundaries of negative liberty. This has led to the creation of two spheres of existence for the citizen: the public and the private. Unfortunately this has traditionally led to the isolation of women to the private sphere. This is no different for Jean-Jacques Rousseau and Alexis de Tocqueville; however, both theorists speak extensively about the virtues of women and their importance to the state. This paper will use these analyses of virtue to construct a view of public citizenship for women that challenges and attempts to resolve the shortcomings of liberal feminism, which seeks only to add women to the male-formed public sphere, by valuing the crucial roles that women have played in the past, their values and contributions to morality, and their sense of connectedness and obligation to others.

**Rita Stevermer, Lindsey Holmgren, and Katie Layman**

Faculty Sponsor: Kyle Chambers, Psychology

## The Effects of Inhibition on Cognitive and Social Situations in Monolingual and Bilingual Adults

**Abstract:** This research looked specifically at the executive function of inhibition and its relation to social behavior in adult bilingual and monolingual participants. Participants were asked to complete a fluency survey to determine level of comfort with each language. Participants were then asked to complete two tasks: The Trail Making Test and The Taboo Task. During completion of these tasks, participants were offered desserts and told to take as many as desired throughout the task. We predicted that bilingual participants would be better at inhibition compared to monolinguals. This difference would be evident through requiring less time in the Trail Making Test, generating more words in the Taboo Task and limiting the number of desserts taken. Previous research shows bilingualism having an effect on cognitive inhibition and also on age effecting social inhibition. Our research combines these two aspects and shows bilingualism having a broad effect on cognitive and social inhibition.

**Christopher Stewart**

Faculty Sponsor: Daniel Moos, Education

## The Incorporation of Technology into Classroom Curriculum

**Abstract:** In concert with a separate research-based assignment at Gustavus, I will study the theory-based rationalization for integrating technology into the classroom. This project will be completed from the perspective of an Education major in cooperation with an Educational Psychology/Technology professor. First, I hope to learn about and critically analyze a variety of empirical research studies that help to explain the validity of this 21st Century transition in American public schools. I intend to address issues of how students process information, how technology can enhance this process, and how

technology can be integrated into school districts with relative ease. Secondly, I will share my personal take on how using technology affects my own learning, and how those observations can be applied to the average student's abilities. This will include a display of some of my own technology-based projects, and research gathered from a study at my home high school district.

**Jennifer Story**

Faculty Sponsor: Michele Koomen, Education

Water Around the World

Abstract: Water is the most important resource on our planet, yet millions of people around our world lack this vital necessity. The world water crisis is increasing at an enormous rate around our globe and awareness is greatly needed, especially among the youth of the world, to fuel action and change. I created a children's book to address this need and it focuses on water and some of the underlying contributors to the world water crisis. Written as an introductory book for second through fourth graders it also contains more detailed information about this problem in a teacher notes section located at the back of the book.

**Jill Suurmeyer**

Faculty Sponsor: Sujay Rao, History

Women Worker Rights In Mexico's Maquiladoras

Abstract: My senior history thesis concerns worker rights in the maquiladoras of Mexico. Maquiladoras are border town factories that are established by the United States and other nations to take advantage of under-enforced environmental and labor regulations. Many maquiladora workers are restricted from organizing unions because they risk losing their employment. There are unions available for maquiladora workers, but many of them are government controlled and exist solely for the benefit of the companies. The purpose of this project is to examine the personal and professional lives of maquiladora workers. More specifically, how these workers were affected by significant political and economic changes from 1970 to 2000. In order to observe these effects, I will analyze the differences between Matamoros, Tamaulipas which has high levels of union participation to Tijuana, Baja California where labor has traditionally been less organized. The presentation of this project will be in the format of a poster.

**Bailey Tanis-Heyenga and Amanda Ziemer**

Faculty Sponsor: Michele Koomen, Education

Phenomenological Study: Asperger's in the Classroom

Abstract: This paper reports on a phenomenological study that sought to understand the role of Asperger's Syndrome in a fourth grade classroom. For this in depth study of our teaching, we used classroom observation, field notes, interviews, and videotapes of our

teaching to collect data over four weeks. We found that having a daily schedule posted and providing an opportunity for all students to move around contributed significantly to a productive learning environment for all, including a student identified with Asperger's Syndrome. Our analysis suggests that teachers can insure that all students have a productive and inclusive school experience when students with exceptionalities are part of the learning environment. In completing this research study, we learned the importance of deep reflection of our teaching. We also are reminded that although there will be challenges in teaching; it is possible that the challenges will illuminate practical methods of supporting all students.

**Evan Taylor, Patrick Young, Anna Ahlbrecht, Tong Thao, Kou Xiong, Rachel Pedersen, and Andrew Keenan**

Faculty Sponsor: Priscilla Briggs, Art

Experimenting With Video Art

Abstract: Video Art students have compiled a reel of various works that explore the medium in very personal ways, each student creating a piece reflective of their personal vision. We use light, performance, paper, sound, ideas, special effects, and Scrabble game pieces to shape reality into a vision that reflects our experience of the world.

**Anna Tibstra**

Faculty Sponsor: Lisa Heldke, Philosophy

Emotion, Devotion, Delicacy, and Detail: Gender In Art Historical Understanding of the Northern Renaissance

Abstract: My research starts from the idea that there is a tendency in many aspects of society and study to create binaries based on gender and gendered characteristics. The male-identified characteristics are the ones that are desirable and/or give greater power in society, while the female ones are generally less desirable and power-giving. In consequence, if there is a binary where one side is set up as being more masculine or having masculine characteristics and the other is more feminine and has feminine characteristics, the more masculine one is likely to be more important or more valued in culture. I propose that there are such binaries in the study of art history, namely in the Italian Renaissance and the "Northern Renaissance." Descriptions of the two movements, both in their own time and since, have feminized the Northern Renaissance in numerous ways, both obvious and subtle. This has had a cumulative effect of exalting the Italian Renaissance while making the Northern Renaissance a less important, and perhaps even failed, double of its southern twin.

**Stephen Titcombe**

Faculty Sponsor: Henry Hays, Economics and Management

Social Security: Reforming to Prevent Insolvency

Abstract: In 2005, 10.6 million Americans relied on Social Security as their sole source of income, a number that is surely much higher today. Unfortunately, the United State's Social Security program is in dire need of reform to prevent insolvency. This pay-as-you-go system has been projected to have payouts equal income in 2017, and its trust fund will be fully depleted by 2040. In order to prevent the economic effects of such an event on American livelihoods, the system must be reformed to meet the current financial situation. A number of proposals for reform have been made including increasing the retirement age, reducing benefits, increasing payroll taxes, and increasing the taxable salary cap. The use of some combination of these reforms may solve Social Security's insolvency. This study investigates the pros and cons of these reforms with a view towards recommending a plan most beneficial to bring solvency to Social Security.

**Erin Towner**

Faculty Sponsor: John Clementson, Education

Teacher Impact upon Student Learning: Patterns with Kindergartners

Abstract: While student teaching in a Kindergarten class, I studied the impact of specific instructional strategies on student learning. My research focused on a twelve-day mathematics unit on patterns. The goals of the unit were that the students would be able to extend, name, and create AB, ABB, AABB, and ABC patterns. I assessed the students before the start of the unit, taught twelve lessons on the topic, and assessed the students again to determine their progress. My research showed a link between students'™ understanding of literacy and their ability to create patterns named with letters. I plan to present my findings through a profile of the students, description of the instructional strategies, and assessment data.

**Abby Travis, Kristy Proctor, Laura Hedeem, Samantha Maranell, Andy Keenan, Breeana Draxler, Matt Heider, Audry Neal, Amy Erickson, Rhea Muchalla, Danielle Harms, Bethany Ringdahl, Elizabeth Faldet, Kierst Finsand, Heather Rusk, and Raissa Carpenter**

Faculty Sponsor: Joyce Sutphen, English

The Poetry of Protest, The Poetry of Witness

Abstract: This series of posters represents an exploration of certain poetry born out of conflict, oppression, and injustice made by the students of "The Poetry of Protest, English 244" (Fall, 2009). Each individual project culminates research that was undertaken under the care of Joyce Sutphen in order to present ways in which a particular poet (or group of poets) speaks to issues of justice and peace. Students were invited to organize their ideas in a variety of ways, including writing a "traditional" research paper, creating an anthology, composing a series of original works, or using audio-visual ways to demonstrate the poets and the issues involved. Some of the topics covered include: an anthology that presents "The Voices of the War in Iraq;" a research paper that contrasts political speeches and poetry (supported by a box filled with quotes); and "America is Asleep," a 73-page hand-sewn collection of poems and commentary.

**Ashley Walburn**

Faculty Sponsor: Barbara Zust, Nursing

**Exploration of the Factors That Influence the Decision Making Process to Terminate or Carry an Unintended Pregnancy**

**Abstract:** The purpose of this study is to explore the circumstances that influence the decision to terminate an unintended pregnancy. Following IRB approval, participants from a private, liberal arts college in the rural Midwest were invited to complete a questionnaire involving 11 items that addressed the influence of personal, familial, social, and economic factors concerning pregnancy termination. Sixty-two respondents between the ages of 18 and 22 completed the questionnaire. Participants described 28 reasons to terminate an unintended pregnancy which included concerns for an infant born to inadequate parents, or parents without the means to provide for the child. Participants listed 26 reasons to not terminate an unintended pregnancy which included the emotional and physical cost to the mother if she chose to end the pregnancy. I plan to present in a poster format

**Matthew Wasson**

Faculty Sponsor: Kris Kracht, Communication Studies

**Expanded Student Recycling Program**

**Abstract:** In public discourse we were asked to identify a problem in the community and come up with a solution which ultimately would create some sort of action promoting awareness or solving the problem. At my former high school, Duluth East, in Duluth, MN there isn't a proper recycling program geared at awareness and student involvement. There is a contract in place with Independent School District 709 that only requires faculty and administration to comply with the recycling program already in place. With the help of multiple student organizations at East as well as other officials--I researched, organized, revised, and proposed a plan that would be an efficient and effective solution to this problem that the students can and eventually will become almost 100% responsible for. I plan to present on the benefits of my project, my solution to the problem and why I chose this method, and the result.

**Isaac Weeks**

Faculty Sponsor: Margaret Bloch-Qazi, Biology

**Lozenge is Required for Normal Sperm Storage Patterns in Drosophila Melanogaster Females**

**Abstract:** Female sperm storage, a process by which sperm are retained in the reproductive tract, is exhibited by many animal species and is a critical component of fertility. However, the mechanisms by which it occurs remain poorly understood.

*Drosophila melanogaster* is an ideal organism in which to study female sperm storage due to its fast generation time, ease of care, and the availability of genetic mutants. Due to observed decreases in fertility and sperm motility in female lozenge mutants, this gene is hypothesized to affect sperm motility and use within the female reproductive tract. I used female lozenge mutants to test these hypotheses and found that lozenge is required for normal sperm storage patterns in females. These results further explain the active role of females in sperm use.

**Kristen Weller**

Faculty Sponsor: Andrea Gross, Theatre and Dance

Collage: A Synchronistic Exploration of Feminist Collage Through Movement and Costume Design

Abstract: How do you use two seemingly unrelated mediums to express the philosophies of feminist collage? Choreographer Michele Rusinko's approached me in the fall with the task of designing costumes for her dance piece, "Collage." Through study of feminist art, garments, movement, and collage, I have worked to create an original design to support Rusinko's choreography and express the idea that every woman is a unique amalgamation of everyone she has met, and everything she has done. My presentation will include my renderings, one of the completed costumes, a video of the dance being performed, and samples of my research process.

**Ray Wilson**

Faculty Sponsor: Henry Hays, Economics and Management

The U.S. Budget Deficit: Restoring Fiscal Discipline

Abstract: Budget deficits are something that the U.S. has experienced for a vast majority of its history. Continuous budget deficits have caused the national debt in the United States to increase to \$10.7 trillion. To produce budget surpluses during fiscal years, there must be prudent fiscal policies that are a right fit for the current situation of the economy. With the current state of the economy being in a recession it is essential that the U.S. comes up with the right combination of fiscal policies and profit producing investments due to the given state of the economy in order to produce surpluses within the next few years. The ability to produce surpluses will protect the United States strong economic reputation along with its fiscal integrity. The research that I will provide will delineate steps necessary to contain spending and develop revenues that will progressively shrink the deficits to regain fiscal discipline.

**Chris Yoshimura-Rank**

Faculty Sponsor: Jill Locke, Political Science

Christianity's Relation to Civic and Political Engagement in the United States

Abstract: The role of religion in civic and political engagement is a hotly debated topic in American society, especially in light of the recent deterioration of civic and political participation, which David Putnam illustrates in his work *Bowling Alone*. The question that I address is how religion impacts civic and political engagement in America. Does religion promote civic and political engagement or does it impede participation in the public sphere? After analyzing religion's effects I will further investigate what religion's association with political and civic engagement teaches us about participation in the public sphere and whether or not this relation may help rectify the current depression in American civic and political participation. I predict that religion will positively influence civic and political participation. Through examination of this relation I expect to find clues as to why civic and political engagement has declined and ways in which this decline may be combated.

**Luke Youngvorst**

Faculty Sponsor: Kris Kracht, Communication Studies

College Cafeteria Food Waste

Abstract: The project that I have been working on is college cafeteria food waste. This is something that I started doing as a speech since I am on the forensics team, but has grown near and dear to my heart. In this I plan on talking about how much food and water is currently being wasted. Although this may seem to be something that doesn't directly affect us, it has devastating consequences. Since we are on the verge of a major food shortage, we must take action immediately. This is something that not many people know about, which is why I think it would be good to share. I will also talk about the simple solutions that everyone can do to decrease the amount we waste. Simple steps such as not using a food tray or lowering your portion size will drastically decrease our total amount of food waste.