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Celebrating Scholarship & Creativity Day

Experiential Learning & Community
Engagement

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2012 Program for Celebrating Scholarship & Creativity Day

Richard White

College of Saint Benedict/Saint John's University, rwhite@csbsju.edu

Bev Radaich

College of Saint Benedict/Saint John's University

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Celebrating

SCHOLARSHIP & CREATIVITY

.....2012.....

We discovered an equation used to calculate the probability any given near-earth **asteroid** will hit the earth... The current study tested whether self-concept clarity and sensation seeking had a relationship with **shyness**... We examined the patient's physical and virtual experience in the current **prenatal care** model at Mayo Clinic.... **Cortisol** is a common stress hormone used in a variety of psychology related experiments... We sought to examine how participants defined **hoarding**... This project explores the **alternative energy technologies**... Our project will look at ways to improve **infection control** knowledge and practice among pediatric nurses in the facility... The management of **aquatic invasive species**... Results showed a positive correlation between self-esteem and recognition of **gender microaggression**... I will explain the beauty of **China** and how its resources are those that can only be found in such a vast amount of land... The comparative advantage of the **solar energy** markets...

Religion could be a way to address issues of race, class or values that normally would not be considered politically correct... We explore the impact that the richest 10% of the world's population has on educational systems... The tension between humanitarian concerns and national interest and how those variables influence the choices of states... This project examines whether foreign direct investment helps or hurts recipient countries... Our project examines health care costs and health care accessibility... We examine public opinion concerning welfare during changes in economic prosperity... We intend to measure the effects of expectations and sample size on the perception of taste... Whether or not anxiety with timed tests affected performance... How social facilitation affects performance on problem solving tasks... The effects that added time pressure during multitasking has on performance... This research uses spectral methods for uncovering these clusters as an alternative to the standard k-means clustering method...

Fine Arts, Social Science, Interdisciplinary/Experiential Learning & Community Engagement Poster Session

Psychology

Janet Tilstra, Ben Faber (Janet Tilstra, Ben Faber, Psychology) Developmental Psychology Fair

In this poster session, students enrolled in Dr. Tilstra and Dr. Faber's Developmental Psychology Spring 2012 classes (psychology 360 sections 02A and 04A) will present interactive displays related to lifespan development theory or application. Displays will relate to individual and cohort age-related changes in biological processes, cognition, social development, or personality. These presentations represent a consolidation of service learning experiences, research, and course content.

Experiential Learning & Community Engagement

Katherine M. Chambers (Christopher Bolin, Experiential Learning & Community Engagement) Creative Cloud

Creative Cloud is a program at the Saint Cloud Public Library started by CSB/SJU students and faculty. The aim of the program is to spark youth interest in the Literary Arts. Roughly every other weekend starting from January 21 and running until May 5. The poster will illustrate the different age groups and lesson plans that have been used throughout the semester.

Institute for Women's Leadership

Mackenzie A. Lecy (Carrie Vandelac, Institute for Women's Leadership) My "smashing" experience in the U.A.E.: the land of paradoxes

My presentation will be a display of my Smashbook, (which is similar to a scrapbook but it involves more journaling and mementos) souvenirs, and materials from the Women As Global Leaders Conference. In addition, I will be around to answer any questions about my experience, or what I learned about women's leadership, sustainability, education, and culture while abroad. The U.A.E. is a fascinating country to study because as one Emirati student proclaims, "Maybe inauthentic is in fact Emirati authentic!" (Jane Bristol-Rhys, Emirati Women). This division between what is true Emirati culture and what life is like in the U.A.E. today leads to an analysis of many different paradoxes. Stop by to look at pictures or ask questions!

Political Science

John R. Dube (Christi Siver, Political Science) Why do different kinds of identity effect a willingness to go to violent conflict?

Why do different kinds of identity affect a group's willingness to use violent conflict? Through my examination of the literature, I hypothesize

that religion, ideology, ethnicity and class will be the most influential variables in this study. I also hope to analyze if geographical and historical factors have an effect on these groups. I will analyze this question by comparing case studies of extreme identity groups and the differences between non-violent and violent occurrences. Analyzing these extreme violent identities could help predict future cases of violence and help prevent escalation to war.

Connor S. Gjevre (Christi Siver, Political Science) Why do the world's strongest powers lose small wars?

Why do the world's strongest powers lose small wars? I will investigate this puzzle by exploring the tactics that the United States and Soviet Union used during their wars with Afghanistan. This puzzle is important because this issue is similar to conflicts that the U.S. could be involved with in the future.

Exercise Science and Sport Study

Dillon S. Altonen, Sam L. Kieser (Don Fischer, Exercise Science and Sport Study)
Correlation of diagonal bounding and vertical jump with on-ice acceleration in female collegiate hockey players

Vertical jump is a test that is often used to predict on-ice acceleration in hockey players. However, because diagonal bounding more closely resembles the movement pattern associated with hockey skating, it is hypothesized that diagonal bounding time may be more strongly correlated to on-ice acceleration.

The purpose of this study was to examine the relationship between on-ice sprint times, dry-land diagonal bounding times, and countermovement jump height. Seventeen Division III female hockey players participated in the study. Participants performed three on-ice 6.1 meter sprint trials and three dry-land 6.1 meter diagonal bounding trials, each measured with a Brower electronic timing system. The best time for each athlete from each set of trials was used in this study. Participants perform multiple trials of the countermovement vertical jump test until they failed to improve their jump height on two consecutive trials. The maximum vertical jump height, measured in inches using a Vertec device, was used in this study. The mean on-ice sprint time, diagonal bounding time, and vertical jump height were 1.47 s (± 0.09 s), 1.97 s (± 0.29 s), 42.49 cm (± 4.93 cm), respectively. A Pearson correlation revealed an insignificant positive correlation between vertical jump height and on-ice acceleration time ($r = .139$, $p > .05$) and an insignificant negative correlation between diagonal bounding time and on-ice acceleration time ($r = -.224$, $p > .05$). The results suggest that vertical jump height and diagonal bounding time are poor predictors of on-ice acceleration for Division III female hockey players.

Mitchell A. Hagen, Colleen E. Bouchard, Jacquelyn M. Donahue (Don Fischer, Exercise Science and Sport Study) Do Division III cross country runners experience the intended coach prescribed training impulse (TRIMP)?

Cross country coaches create training plans to induce desired adaptations. However, research suggests athletes do not consistently train as the coach prescribed. The purpose of this study was to examine the relationship between coach intended (CI), athlete-perceived (AP) and physiological (P) training impulses (TRIMP) during recovery (R), slow long distance (SLD), tempo (T) and interval (I) training performed by 14 Division III female cross country runners. A TRIMP weighting scale was created for each athlete based on her blood lactate curve. Heart rate data were collected using Polar Team System heart rate monitors during a two-week in-season period. The P TRIMPs were calculated by multiplying time spent in each heart rate zone by the assigned weighting factor. The CI TRIMPs for each practice session were calculated using the prescribed running intensity based on intended rate of perceived exertion (RPE) multiplied by duration. The AP TRIMPs were calculated using session RPE multiplied by duration. One-way ANOVA revealed significant differences in the mean TRIMPs for R [(F (2,204) = 3.359, p = .037)], T [(F (2, 75) = 19.034; p < .001)], and I [(F (2, 55) = 4.161, p = .021)] training, but not for SLD training [(F (2, 60) = 1.089, p = .343)]. Post-hoc testing revealed a significant difference (p = .019) in the mean CI (M = 52.52, SD = 29.73) and P (M = 65.80, SD = 32.50) TRIMPs during R training. Also, significant differences (p < .001; p = .006) in the mean CI (M = 109.87, SD = 26.54; M = 72.17, SD = 38.16) and AP (M = 6.77, SD = 30.37; M = 41.93, SD = 26.21) TRIMPs were found during T and I training, respectively. These results suggest participants trained at intensities higher than coach prescribed during R training. During T and I training, athletes ran at the coach-indicated intensity, but perceived themselves to be training at a lower intensity. The results indicate a need to more closely monitor intensity during R training to ensure proper recovery.

Alex M. Hanson (Don Fischer, Exercise Science and Sport Study) Use of rate of perceived exertion measured during progressive treadmill testing

Rate of perceived exertion (RPE) is a method used by coaches to prescribe exercise intensity. RPE is intended to correspond to a target heart rate (HR) range for the athlete. Often the HR/RPE relationship is determined using a progressive treadmill test. The purpose of this study was to examine the relationship between the athletes' reported session RPE and the momentary RPE during a progressive treadmill test. Fourteen Division III female cross country runners performed a progressive treadmill test at the beginning of the season. At two-minute intervals, heart rate and momentary RPE were recorded. During a two-week period, participants wore Polar Team System HR monitors for recovery, long slow distance, tempo, and interval cross-country practices and reported session RPE at the end of

each practice. The average HR for each practice was calculated and compared to the treadmill HR/RPE curve, which allowed us to compare the session RPE and momentary treadmill RPE at the corresponding HRs. A Pearson Correlation revealed a positive relationship between session RPE and treadmill RPE during recovery ($r = .385$) and long slow distance ($r = .156$) running. Negative correlations were observed for the more intense tempo ($r = -.124$) and interval ($r = -.226$) training. An RPE scale based on a shorter-duration progressive treadmill test is not a highly effective method for prescribing running intensity. Future research should investigate the reliability of HR/RPE scales that are based on progressive tests of comparable duration and environmental conditions as those of the subsequent exercise sessions.

Anna E. Krieger (Don Fischer, Mary Stenson, Exercise Science and Sport Study)
Relationship between rate of perceived exertion and blood lactate concentration in female cross country runners

Previous studies have found a strong correlation between the rate of perceived exertion (RPE) and blood lactate levels. However, the strength of this relationship has been shown to depend on the population. The purpose of this study was to examine how closely the RPE corresponds to blood lactate concentration in Division III female cross country runners during a progressive treadmill test. Fourteen Division III female cross country runners participated in this investigation. All participants finished in the top half of a 2.5 mile time trial at the beginning of the season. Each performed a progressive treadmill test to assess blood lactate levels and RPE, with blood sampling every two minutes. Pearson's correlation analysis revealed a significant, positive correlation between RPE and blood lactate levels [$r(157) = .849, p < .001$]. The strength of the relationship between RPE and blood lactate concentration in female cross country runners is stronger than that found in other active populations, such as soccer players. The results provide additional evidence that blood lactate concentration may be a physiological mediator for perception of exertion during dynamic exercise and may serve as a stronger mediator for female cross country runners compared to other active populations.

Dustin M. Schlangen, Jon H. Schoenecker (Don Fischer, Mary Stenson, Exercise Science and Sport Study) Calculating training impulse: a comparison of three methods

Training impulse (TRIMP) is the product of exercise intensity and duration and is a method used to quantify training load. Several methods of calculating TRIMPs have been proposed, but no comparison of the results of the various methods have been reported. Therefore, the purpose of this study was to examine the strength of the relationship between the TRIMPs calculated by two methods reported in the literature and a novel method created for this study. Fourteen Division III female cross country runners

participated in this study. All participants completed a progressive treadmill test with concurrent heart rate and RPE monitoring, and blood lactate testing every two minutes. Heart rate and blood lactate data were used to create a unique non-linear TRIMPs weighting scale for each athlete. For two consecutive weeks, heart rate data were collected using Polar Team System heart rate monitors during all coach prescribed running, including recovery (R); slow, long distance (SLD); tempo (T); and Interval (I) running. The TRIMP for each athlete during each training session was calculated using the three different calculation methods. Pearson bivariate correlations revealed a significant positive relationship ($p < .001$) between the TRIMPs associated with each of the calculation methods during R (r ranged from .727 to .844), SLD (r ranged from .706 to .855) and I (r ranged from .617 to .844) practice sessions. Tempo runs produced the greatest range in correlations (r ranged from .232 to .814). The results indicate strong positive relationships between the TRIMPs calculate by the three methods when the majority of the practice session heart rate data were below lactate threshold. However, when heart rates were near or above lactate threshold for the majority of the practice, the correlations between the methods were not as strong. The results of this study suggest that the three methods of calculating TRIMPs are not equivalent. Therefore coaches need to become aware of the advantages and disadvantages of each method. Future research should look to establish the most valid method of calculating TRIMPs across a spectrum of training intensities.

Jon Schoenecker, John Cicchese (Don Fischer, Biology) Optimal angle of knee flexion for maximal vertical jump in Division III collegiate athletes

Vertical jump is often used as a measure of lower body power. However, the validity of vertical jump test results may be affected by the athlete's jump technique, including knee flexion take-off angle. The purpose of this study was to measure the effect of three countermovement knee flexion take-off angles on vertical jump height. Twelve Division III male collegiate football players volunteered to participate in this study (18-22 years old). Participants performed three countermovement vertical jumps for each of the three trials: knee flexion take-off angle at 50, 80, and 110 degrees). Vertical jump height was measured to the nearest tenth of an inch with a Just Jump contact mat and converted to centimeters. Repeated measures ANOVA revealed a significant effect of knee flexion angle [$F(2, 22) = 25.268, p \leq 0.001$]. A pairwise comparison revealed significant greater jump height when the knee flexion take-off angle was 80 degrees (67.417 ± 1.730 cm; $p \leq .001$) and 110 degrees (68.791 ± 1.755 cm; $p \leq .001$) compared to 50 degrees (61.595 ± 1.369 cm). No significance in vertical jump height was found between the 80 and 110 degree knee flexion take-off angle trials ($p = .412$). Therefore, a knee flexion take-off angle between 80 and 110 degrees appears to be advantageous in maximizing vertical jump height.

Jessica R. Woelfel, Katie J. Schwab, Jacob L. Helmer, Andrea M. Tobias (Mary Stenson, Don Fischer, Exercise Science and Sport Study) Effects of cold water immersion on competitive female dancers during three days of unaccustomed training

Athletes training multiple times per day require fast, effective recovery methods. Cold water immersion (CWI) is commonly used by athletes to speed recovery and attenuate muscle soreness, edema, and inflammation in order to maintain performance during subsequent exercise bouts.

The purpose of this study was to investigate the effects of post-exercise CWI during three days of unaccustomed intense training, on fatigue, perceived muscle soreness (PMS), flexibility, thigh circumference, vertical jump, agility, and anaerobic capacity in competitive female dancers.

Twelve untrained female dancers (18-22 years old) completed three light to intense pre-season exercise sessions per day for three consecutive days. Morning workouts consisted of two hours of moderate to high intensity training, followed by either CWI (10 min at 10 C, N=7) or the lower body covering the hips and legs or no treatment (N=5). Subjects completed three hours of moderate intensity dance in the afternoons, and one to two hours of easy dance in the evening. Rectus femoris, hamstring, and gastrocnemius flexibility, thigh circumference in three areas, vertical jump, and PMS were measured before the morning session, before treatment, and after the afternoon session. Agility and anaerobic capacity tests were performed prior to the morning workouts on the first and fourth training days.

No significant differences ($p > 0.05$) were observed between groups over time in flexibility, vertical jump, agility, anaerobic capacity, fatigue, or PMS. Significant differences ($p < 0.05$) were observed in mid-thigh circumference over time, specifically during day two of training. A non-significant trend ($p > 0.05$) towards smaller mid-thigh circumference over time in the CWI group was also observed. A trend towards increased gastrocnemius flexibility from baseline to 72 hr. post was observed in the CWI treatment (BL: 12.40 ± 1.90 degrees; 72 hr. post: 13.20 ± 2.61 degrees, $p > 0.05$, $d = 0.35$), while a decrease in flexibility was observed in the control treatment (BL: 15.57 ± 1.61 degrees, 72 hr. post: 13.14 ± 2.21 degrees, $p > 0.05$, $d = 1.26$). CWI did not enhance subsequent performance or recovery or attenuate perceived muscle soreness over three days in untrained competitive female dancers. Effect size indicates that the results may be limited by the small sample size in each group.

Experiential Learning & Community Engagement

Kelsey A. Torchia (Laura Hammond, Experiential Learning & Community Engagement) Solar power in the Sundarbans, India

This project will explore my time working at ASED, the Association for Social and Environmental Development, in Kolkata, India, and the Solar Lamp Project I have been working on this spring. We are working to provide students in the Sundarbans with Solar Lamps to further their educational endeavors as well as investigate the impact of solar power in the region.

Mary C. Weber (Laura Hammond, Experiential Learning & Community Engagement) Interning for non-profit: Saint Cloud Figure Skating Club

I will be presenting on my internship experience at the Saint Cloud Figure Skating Club working as their marketing intern. I will be talking about my experience working with a board of directors that are all volunteers. I will discuss the pros and cons of volunteer boards. I will also share how I helped with the restructuring of the club and improved their communication methods through Google and other means of social media.

Political Science

Jared W. Berg (Christi Siver, Political Science) While gays and lesbians have gained greater acceptance, there is still resistance to gay marriage — how have states overcome these obstacles to pass gay marriage legislation?

Currently, gay marriage is only allowed in six states. However, other states are trying to follow suit. The proposed study would look at forces within the states that have passed same-sex legislation. These variables include religion, politics, and methodology. Common findings could be used for other states attempting to grant same-sex marriage.

Kathleen E. Burns (Kay Wolsborn, Political Science) Educational reform in the United States: Testing what is taught or teaching to the test

Standardized tests have caused unintended consequences. The importance placed on student performance in the standardized tests has caused some schools to abandon traditional curricula and focus on teaching to the tests.

Hannah S. Deblauwe (Christi Siver, Political Science) The Arab Spring: Why do revolutions succeed?

Why did some revolutions of the Arab Spring succeed where others failed? With this question in mind I present some of the pre-existing theories as to why revolutions succeed and present my own ideas as to what I would research in order to answer this difficult question.

Melissa M. DeOrio (Christi Siver, Political Science) Child soldiers: rebel group recruitment behavior

My research project will explore the question, 'why do rebel groups recruit children as fighters in civil conflicts?' The variables which I will use to study this phenomenon are: children as a source of cheap labor, their increased loyalty, the ever-growing simplicity of weapons technology and the permeation of weapons in third world countries. I will test these variables by using a few-country study approach in order to compare several different situations in which child soldiers have arisen. The topic of child soldiers is extremely important because there is an increasing trend of children being used in armed groups around the world, both in rebel groups and in state governments. This research would shed light on the decision-making behavior of rebel groups when it comes to finding soldiers, which would allow for the development of policies which would work to disarm, demobilize and reintegrate child soldiers back into society in order to lay the foundation of a less volatile future.

Austin J. Eighan (Christi Siver, Political Science) Neocorporatism and its success in the German economy

Why has Germany continued to grow economically while other European states have been less successful? Germany has used the neo-corporatist model to produce an economically efficient and productive society. But what conditions and variables must exist for a neo-corporatist model to thrive? I have developed a research design that will compare the factors of civil society, national endowment, and business incentives to determine why neo-corporatism has been so successful in Germany.

Maria G. Galeano (Christi Siver, Political Science) Why do Latin American governments recognize indigenous groups?

Building on limited literature on the recognition of indigenous groups in Latin America, I will investigate different explanations for this phenomenon, including international organizations/governments' pressure, national indigenous movements and civil rights movements. I propose a research design to test these hypotheses in Guatemala, Ecuador, Peru and Brazil.

Julius A. Gernes, Thomas E. Kohler (Kay Wolsborn, Political Science) Connection between wealth and education level

We explore the impact that the richest 10 percent of the world's population has on educational systems. Does having money guarantee a better education regardless of intelligence?

Beau G. Grams (Christi Siver, Political Science) Democratic peace theory

Why are democracies less likely to go to war with other democracies? After reviewing the vast literature on this topic, I will present a research design that examines which variables explain this empirical observation,

and more specifically on the structure of democracies, and why this may make them less violent with each other.

This is important because Democratic Peace Theory is still an unsettled debate.

John E. Godfrey (Marah Jacobson-Schulte, Matt Lindstrom, Political Science) 2011 Jackson Fellowship: Central Minnesota legal services

The College of Saint Benedict Jackson Fellowship program provides undergraduate students at CSB/SJU with the opportunity to participate in full-time summer internships related to promoting the values of social justice and civic engagement.

I used this opportunity to work at Central Minnesota Legal Services in St. Cloud, Minn. We are a federally-funded nonprofit that provides free civil legal advice and representation to low-income individuals and families in Central Minnesota. This project, captured in poster format, is intended to promote the Fellowship and Central Minnesota Legal Services as integral, if in different ways, to promoting social justice in Central Minnesota. Further, it is to exemplify the notion that even undergraduate students can be an active agent for positive change within his or her community.

In addition to my summer work with the Jackson Fellowship, I have been able to work at Central Minnesota Legal Services during the school year by participating in the Bonner Leadership program, which is a national organization dedicated to fostering the pursuit of social and economic justice by motivated undergraduate students who aspire to make a difference in the community in which they live as undergraduates for four years.

Jordan C. Hagert (Kay Wolsborn, Political Science) Religion, trust, and turnout

My project examines how religious intensity and affiliation impacts voter turnout and overall trust in government.

Emily C. Jensen (Christi Siver, Political Science) Ethnic cleansing: a look into why ethnic cleansing became policy in Bosnia

This project consists of a research design into why ethnic cleansing, a heinous act, became accepted policy in Bosnia during the war years of 1992-1995. During the war, Serbian nationalist actively pursued policies of ethnic cleansing against Muslims. This research examines the different theories of ethnic cleansing and lays out a unique research plan designed to test independent variables in effort to lend research and reason to the question that might explain such a policy decision.

Stephen D. Katz (Christi Siver, Political Science) Latin American Environmental Policy Commitment

Why do some countries make a commitment to the environment when it is not necessarily in their best economic/overall interest? Based on my review of the literature, some possible explanations are the type of governmental system, political participation, development, and poor/minority populations. I will look at countries in Latin America and see how they differ in relation to this issue. Greater understanding of this question could show the relationship between the level of democracy and environmental policy. It could also show the impact of international trade or development on whether a country chooses sustainable extraction practices.

Eric M. Larsen (Kay Wolsborn, Political Science) Immigration Policy: regional variation in public opinion

This project examines the relationship between where people live and their attitudes about immigration. Why is this important?

Rachel E. Mullin (Christi Siver, Political Science) Genocide research puzzle

This project examines cases of ethnic, religious, and political competition that do not escalate to genocide. While the current research into genocide focuses on factors that can cause genocide, little work has been done on cases that possess the opportunity for genocide but, for a variety of reasons, refrain. This research may discover previously unknown variables and allow for more informed decisions about genocide prevention.

Kirubel F. Negash (Christi Siver, Political Science) Why do terrorist groups struggle to be considered as a legitimate political institution?

I will be working on a research puzzle that seeks to answer the question of why terrorist groups struggle to be considered a legitimate political institution. I will be looking into several scholarly sources to see the different explanations and theories that scholars have regarding this topic.

Erin E. Noel, Chase A. Myhran (Kay Wolsborn, Political Science) Do negative ad campaigns affect citizens' opinions?

The theory on which this question is based is that negative ad campaigns influence citizens to think negatively about the targeted candidate and to withdraw their support for that candidate. Two additional variables could help explain citizen choices: party affiliation and voting trends.

John N. Reagan (Christi Siver, Political Science) Research design: Why do governments rely on NGOs to provide public goods?

This is a presentation on many countries research design which is meant to give an overview on NGOs and their role in the international market and governments.

Jared R. Ruhland (Christi Siver, Political Science) Military bases research design

My research puzzle is: Why do states have military bases outside their territory? I will use the United States as a case study. Currently my independent variables will be strategic security interests and concerns, United States' military obligations, and participation in large military treaties such as NATO. The method I would use would be field research in Washington D.C. and then abroad in countries such as Japan, which houses many U.S. military bases. This is an important research design because the military bases in foreign countries are very costly and can breed discontent among the local population. I want to know why states find that the benefits outweigh the costs.

Jacob P. Salzl (Christi Siver, Political Science) Religious America

Why do politicians appeal to religious groups during presidential campaigns? Religion could be a way to address issues of race, class or values that normally would not be considered politically correct. I want to do a state-by-state analysis of campaign speeches, analyzing the use of religious words, phrases and symbolism. After that I would like to interview campaign staff to get an understanding of the speeches' intended audiences. Finally in hopes of coming to a conclusion I would then poll listeners to better understand the actual demographics of the audiences. More Americans are identifying themselves as agnostic or atheist than ever before and yet it would seem that presidential campaigns are increasingly targeting religious people — I want to know why.

John R. Subialka (Christi Siver, Political Science) Why do states with multiple identity groups tend to experience more violence?

A Research Design Puzzle examines multiple explanations for the puzzle while attempting to fill gaps in the current existing research. This includes a discussion of the independent and dependent variable involved and an explanation of how I would test my hypothesis.

He Ren (Christi Siver, Political Science) Why do women in power in the East have different effects on domestic policies than women in power in the West?

I am doing a research design to compare the different outcomes that are generated by women leaders concerning domestic politics in the Eastern and Western worlds. I will test the possible explanations for these differences, including historical backgrounds, education level of women, and economic developments.

Yadan /Zhang (Christi Siver, Political Science) Why aren't there female leaders in Japan and China?

During the last decades, there is an interesting political phenomenon in Asia that more and more female political figures have emerged. However, China and Japan are exceptions. This research design is made to answer the question why China and Japan haven't had any female political leaders (in a high position like president or prime minister) while women leaders are rising in other Asian countries.

Alul Yesak (Christi Siver, Political Science) National interest and mass atrocities

My project focuses on how states choose to intervene in countries where mass atrocities are happening. I focus on the tension between humanitarian concerns and national interest and how those variables influence the choices of states.

Dan J. Wattenhofer, Beau G. Grams (Kay Wolsborn, Political Science) Impact of foreign direct investment

This project examines whether foreign direct investment helps or hurts recipient countries and more specifically its effects on natural resource allocation and conflict. This is important because investments are a big part of the United States foreign policy strategy.

Daniel K. Wolgamott, Billy Jaffee (Kay Wolsborn, Political Science) Interstate comparison of health care: Minnesota and Wisconsin

Our project examines health care costs and health care accessibility to address the question, Which state has the most cost-effective state health care program — Minnesota or Wisconsin?

Katherine J. Zuroski, Katherine M. Paul, Katherine M. Friendshuh (Kay Wolsborn, Political Science) Support for social welfare in changing economic climates

We examine public opinion concerning welfare during changes in economic prosperity. Does public support for social welfare change as the United States economic climate changes?

Psychology

Ruth E. Balk, Mathew D. Rockwell, Sean P. Murphy, Lindsey R. Ehlert (Pam Bacon, Psychology) Effects of expectations and size of sample on the perceptions of taste

We intend to measure the effects of expectations and sample size on the perception of taste. Our independent variables are expectations for the type of drink and amount of the drink tasted. Our dependent variable is how much participant like/disliked the taste of the drink.

Jared W. Berg (Rodger Narloch, Psychology) Correlates of shyness: roles of self-concept clarity, sensation-seeking, and Facebook friends

Former research has focused on shyness in children and the negative correlation of self-concept clarity and relationship satisfaction. But these studies leave out an essential time period to make friends: college. The current study used a one-shot design utilizing a convenience sample of 128 traditional college-aged students. The current study tested whether self-concept clarity and sensation-seeking had a relationship with shyness. The study also tested whether shyness and the number of Facebook friends were correlated. The results showed that shyness had a negative linear relationship with self-concept clarity and sensation-seeking. However, there was no linear relationship between shyness and the number of Facebook friends.

Kelsey E. Boegel, Kimberly R. DeBeer (Janet Tilstra, Psychology) Perceptions of hoarding and people who hoard: an exploratory survey

In this exploratory survey we examined the perceptions of 97 college students and young adults (18-24 yrs.) regarding hoarding, and compared our results to clinical findings of people who hoard. Specifically, we sought to examine how participants defined hoarding, their perceptions of people who hoard, and the accuracy of the results in comparison to clinical criteria. One variable of interest was how these perceptions were generated — through media portrayal or through academic sources.

Emily E. Bures (Rodger Narloch, Psychology) Do shyness and regret correlate with making friendships?

This study examined the interrelationships among regret, shyness, and number of Facebook friends. Research assistants collected data from a convenience sample of 128 college students that attend a small rural Catholic university. The results showed a positive correlation between shyness and regret. However, there was a non-significant correlation between regret and shyness and also, shyness and Facebook friends.

Feiran Chen, David Gray, Rachel Heying, Wade Kohls, Beth Peichel, Jeffrey Reed, Amanda Nussbaum, Sara Duxbury (Aubrey Immelman, Psychology) The personality profile of 2012 presidential contender Rick Santorum

Biographical and life history data concerning Republican Presidential Candidate, Rick Santorum, will be collected from media reports and synthesized into a personality profile using the second edition of the Millon Inventory of Diagnostic Criteria (MIDC), which yields 34 normal and maladaptive personality classifications congruent with Axis II of DSM-IV. The poster will describe Santorum's personality profile and outline its implications for leadership.

Kayla M. Deutz, Taylor C. McCall, Lindsay M. Tholen, Hannah R. Welinski (Pam Bacon, Psychology) Rivals revealed

We will be examining the impact of school affiliation on CSB/SJU students' helpfulness. We will be testing this by dropping stamped letters addressed to students from St. Thomas or the University of Minnesota and waiting to see how many of the letters are returned. We hypothesize that students will be less likely to mail a lost letter if the recipient attends St. Thomas rather than the University of Minnesota because of our long-standing rivalry with UST.

Mick J. Doyle (Michael Livingston, Psychology) Interracial relationships and sexual orientation

I am in the process of proposing research to be done in the next month on whether homosexuals are more likely than heterosexuals to date members of different ethnicity both within the white community and within minority communities.

Maura Flaherty, Paige Hendrickson, Anika Chowdhury, Beck Huesers (Robert Kachelski, Psychology) Test performance and anxiety

The purpose of this project was to see whether or not anxiety with timed tests affected performance. The procedure included two manipulations (experimental groups) and one control group. Our dependent variable was the result of the test. The independent variables were the different techniques that were used to build anxiety. The participants were randomly assigned to groups according to a random number table. The test consisted of 10 questions relating to basic reading comprehension. After they took the test, the experimenters administered a survey to measure the participants' test anxiety. The surveys were used to measure the performance on the test with the level of anxiety that the participants felt. Our research hypothesis was that the experimental groups would be different in the levels of anxiety than the control group. The null hypothesis of this study was that there would be no difference between the experimental and control groups.

Michael G. Fitzgerald (Aubrey Immelman, Psychology) The personality profile of Republican Presidential Candidate Rick Santorum

Data concerning Republican presidential candidate Rick Santorum were collected from biographical sources and media reports and synthesized into a personality profile using the second edition of the Millon Inventory of Diagnostic Criteria (MIDC), which yields 34 normal and maladaptive personality classifications congruent with Axis II of DSM-IV. The poster will summarize the core personality patterns from which Santorum's likely leadership style as president can be inferred.

Lauren M. Gavin (Rodger Narloch, Psychology) The relationship between shyness, sensation-seeking, and trust among college students

The purpose of this study was to examine if there were significant linear relationships between shyness, sensation-seeking, and interpersonal trust among college students. Research assistants conducted one shot survey sessions for a convenience sample of 128 undergraduate college students. The data revealed a significant negative linear relationship between shyness and sensation-seeking among college students. However, it did not reveal significant linear relationships of interpersonal trust with either shyness or sensation-seeking.

Kayla M. Grack, Daniel C. Gutmann, Riley P. Quiram (Robert Kachelski, Psychology) Mental performance and external presence

The purpose of the study was to see how social facilitation affects performance on problem solving tasks. Participants were given a puzzle called The Tower of Hanoi to try to complete in as few moves as possible. We explained how to do the puzzle to avoid any confusion and then recorded the amount of time and number of moves it took them to complete the puzzle. The puzzle we used was online and recorded the number of moves and time spent completing the puzzle. We manipulated whether someone (a researcher) was in the room observing them, and whether the researcher was taking notes or just in the room watching. In addition to varying whether or not they are being observed, we also varied the complexity of the puzzle by using different amounts of discs. We then determined if these different scenarios have an effect on how the participants perform on this puzzle, in terms of time spent completing it and how many moves it took to complete it. We also measured the stress level of the participants through an interview at the end of the task.

Kerri E. Graske (Stephen Stelzner, Psychology) Multitasking in the workplace with added pressure

Research demonstrates the prevalence of multitasking in the work place, and it also shows how multitasking can lead to inefficient performance. However, there is limited research that looks at how the initial stress of multitasking with an added time pressure, such as deadlines to complete tasks, affects performance. A typical workday consists of the ordinary job responsibilities that the employee has agreed to accomplish, but in addition

to the original tasks many workers take on extra tasks from co-workers, superiors, or even customers. Therefore, the current study examines the effects that added time pressure during multitasking has on performance. There were two hypotheses: 1) Participants will perform worse while multitasking, and 2) Participants will perform even worse while multitasking with an added time pressure.

Rebecca M. Haile (Rodger Narloch, Psychology) How self-concept clarity relates to regret and trust

Self-concept clarity is expressed in every facet of life, in particular, trust and regret. This study sought to illustrate relationships in these specific areas so that future research can be pursued into the motivations and subconscious reasons behind certain types of behavior. Researcher assistants conducted a one-shot survey among a convenience sample of 128 undergraduate students to obtain the data. The results showed a negative linear relationship between self-concept clarity and regret. However, there was no relationship found between trust and either self-concept clarity or regret.

Kevin P. Healy, Alex Twohy (Linda Tennison, Psychology) Cortisol levels in well-adjusted and poorly-adjusted first-year students

Cortisol is a common stress hormone used in a variety of psychology related experiments. It has been linked to psychopathological conditions such as depression, anxiety, and PTSD. First-year students enrolled in an introductory psychology course were asked to fill out the SACQ and were also asked to give saliva samples at four points during the day. The results showed that morning measures of cortisol positively correlated with the SACQ scores, but there was no correlation with afternoon and evening cortisol measurements.

Jessica A. Heggem, Nicole K. Larson, Greta L. Bajari, Katherine M. Cocca, Takai A. Bethel (Pam Bacon, Psychology) Conformity experiment

We are looking at informational conformity. We want to find out if confidence levels will influence whether or not a person will conform to the answer of a difficult test. We want to see if the sign of intelligence (glasses in our study) will have a stronger influence on participants than those without glasses.

Tim J. Hendrickson (Linda Tennison, Psychology) Does meditation improve the ability to perceive emotive words more effectively?

The lateralization of the brain is the neurological phenomenon in which stimulus processing depends on which hemisphere processes that information. In a study performed by Killgore & Todd (2007) it is suggested that the processing of emotion when viewing emotionally valence faces in a chimeric was different depending on the visual field it

was shown in. Not only is hemispheric asymmetry present in people with the processing of emotive facial recognition but it also seems to be shown through emotion linked words (Atchley et al., 2003).

Currently I am enrolled in a Buddhist psychology course. As part of this course we were part of an 8-week course practicing mind-based stress reduction (MBSR). In it we focused on techniques proposed by practicing Buddhist monks and the Buddha himself to be 'mindful' in our lives. To be 'mindful' is to be present in the moment and accept things as they are irrespective of emotional biases.

Research by Holzel et al. (2011), provides evidence that practicing meditation and the act of being 'mindful' provided a significant increase in regional brain gray matter density including regions such as: left hippocampus, posterior cingulate cortex, temporo-parietal junction, lateral cerebellum and cerebellar brainstem.

Based on the research on MBSR courses the present study is attempting to prove an increase in gray matter through an experiment similar to that of Atchley et al. In the study positively or negatively charged words were presented for 200ms in either the right or left visual fields. The students took the experiment prior to the MBSR course and were tested following the course. We hypothesize that there will be a change in the capability of the students to perform the tasks from the experiment.

Alyssa E. Hoppe (Rodger Narloch, Psychology) Sensation-seeking: relation to shyness and gender

The focus of this cross-sectional survey study was to investigate sensation-seeking differences among males and females and to explore the relationship between shyness and sensation-seeking. Research assistants administered surveys to 61 female and 66 male college-aged students. Shyness and sensation-seeking were negatively correlated and males, on average, had higher sensation-seeking scores than females.

Mary K. Jenkins (Rodger Narloch, Psychology) Do shy people take more risks? The relationship between shyness, sensation-seeking, and differences across gender

The purpose of this study was to identify a relationship between sensation-seeking and shyness. I also examined differences in shyness and sensation-seeking across gender. In this cross-sectional design, research assistants distributed surveys to a convenience sample of college students (61 females, 66 males). The results showed a significant negative linear relationship between sensation-seeking and shyness. Also, males were higher in sensation-seeking and lower in shyness than females.

Jordan N. Jodzio (Rodger Narloch, Psychology) Shyness and its relationship to gender and participation in sports

The point of this study was to examine differences in shyness across gender and participation in organized sports. There were 61 female and 66 male undergraduate college students who took part in the cross-sectional survey to measure their shyness as well as their gender, and if they had ever participated in a junior varsity or varsity sport in high school or college. The results showed that men regarded themselves as more shy than women, but those who had ever participated in a junior varsity or varsity sport did not differ in shyness from those who did not.

Wade G. Kohls (Rodger Narloch, Psychology) The relationship between sensation-seeking, shyness, and regret

This study examined three different psychological traits to discover a connection between them: sensation-seeking, shyness, and regret. Researchers each selected a number of students by convenience sampling at a private catholic school for a total of 128 participants. This was done in a one-shot design. Of all participants, 66 were men and 61 were women. I found that all three of my hypotheses were supported with significant statistics. Sensation-seeking was negatively correlated with shyness and negatively correlated with regret. Regret and shyness were positively correlated.

Ashley L. Levens (Mike Livingston, Psychology) Meaningfulness in religious and nonreligious individuals

This project looks at if there is a difference between religious and nonreligious individuals in the area of Meaningfulness. The survey used to test this was sent out to both CSB/SJU students along with other internet avenues.

Maddilyn C. Lindeman, Kirstie M. Harmdierks, Mark A. Leon-Guerrero (Robert Kachelski, Psychology) Social desirability and helping behavior

People vary in their need for social acceptance — some people care a great deal what others think of them, whereas others do not care as much. One way this need for social acceptance can be seen is through people's responses to questions designed to measure social desirability. When asked to evaluate themselves on self-report questionnaires, people with a higher need for social approval tend to present themselves in socially desirable ways, exaggerating positive characteristics and behaviors while hiding or minimizing negative characteristics and behaviors. People with a lower need for social approval tend to answer more truthfully.

Previous research has shown that people who have a higher need for social-desirability are more likely to show helping behaviors. Our study was designed to see if this research held true in a college-population using different methods. All participants took the Marlowe-Crowne Social Desirability Scale assessment (full form). In addition to the social-

desirability variable was the priming of helping behavior. The experimental group was given a touching story about helping behavior. The control group was given a neutral story or article that was unrelated to helping behavior. Helping behavior was measured after reading the stories. An additional sheet with a list of options for additional volunteer opportunities with the research was also given. We predicted that people with a higher social desirability-score would be more likely to exhibit helping behavior than those with lower scores.

Tess M. Mattson, Caitlin H. Skluzacek, Margeaux A. Minea, Stephanie M. Morpew (Pam Bacon, Psychology) Implicit egotism and self-esteem

Our study will measure how self-esteem affects implicit egotism. Based off "How Do I Love Thee? Let Me Count the Js," by John T. Jones, Brett W. Oelham, Mauricio Carvallo, and Matthew C. Mirenver, we hypothesize that participants primed for high self-esteem will show more implicit egotism than those primed for low self-esteem. We will use a self-esteem prompt to prime for high or low self-esteem conditions, and the SuperLab program to measure implicit egotism.

Olivia R. Meyer, Hania A. Adam, Ryan N. Mastellar (Rober Kachelski, Psychology) Effects of presentation and syllables on memory

Our study will be looking at how short-term memory is affected by visual and auditory presentation and the amount of single and multi-syllable words. In testing this, our words will be of equal length, and of different amounts of syllables. This is consistent with the research that shows how in mental rehearsal, it takes longer to rehearse words that have more syllables. There will be two word lists for the visual presentation portion and two for the auditory portion. The word lists will be presented and participants will then be asked to write down words remembered. Each participant will be asked to participate in each of the four conditions. We predict based off of previous research that results will show the visual and auditory-presented, one-syllable words will be recalled more easily than words with more than one syllable.

Participants will be students from CSB/SJU. We will find participants through asking friends, acquaintances and classmates to volunteer. There will be no risks involved as well.

Amanda R. Nusbaum (Rodger Narloch, Psychology) Gender differences in sensation-seeking and shyness: an evolutionary approach

This study examined the relationship between sensation seeking and shyness across genders in undergraduate college students. Research assistants used a cross-sectional survey design to study a convenience sample of 66 female and 61 male participants. The results showed a negative linear relationship between sensation seeking and shyness. The

results also indicated that females score higher in shyness and lower in sensation-seeking than males.

Elizabeth E. Peichel (Rodger Narloch, Psychology) Interrelations of shyness, trust, and regret in sociability

The purpose of this study was to determine the correlations between three personality characteristics dealing with sociability: shyness, trust, and regret. Using a one-shot design, researchers distributed surveys to 128 college-age students at a rural, Catholic college. There was a positive linear relationship between shyness and regret, but there was no relationship of trust with either shyness or regret. It would seem, then, that in social contexts, shy individuals will experience greater regretful tendencies about inactions in their interactions with others.

Kate M. Reichert (Rodger Narloch, Psychology) How participation in sports relates to shyness and sensation-seeking

The purpose of this study was to determine the relationship between participation in sports, shyness, and sensation-seeking. A cross-sectional survey design was used to collect data from a convenience sample of 128 college students. Students who participated in sports were greater sensation-seekers, but they did not differ in shyness from students who did not participate in sports. Results also showed a significant negative linear relationship between shyness and sensation seeking in adults.

Laura R. Shrode (Ben Faber, Psychology) The influence of odor on emotion and memory

Odor and memory, emotion and memory, or emotion and odor all have a variety of research describing their relationships. Past research has found that odors act as potential effective memory cues (Schab, 1990). Research has also found that emotion plays a prominent role in memory retrieval (Buchanan, 2007). Other studies have shown that there is a special neural connectivity between the olfactory cortex, amygdala, and hippocampus (Herz & Cupchik, 1995). Based on these findings, the purpose of the present study is to observe how the three interact together. It will look specifically at the influence that odor has on both emotion and memory. The experiment has a two (scent valence) by two (emotional valence) within subjects design looking at the differences in memory recognition and recall between conditions involving a pleasant or unpleasant scent and having the participant in an emotional or non-emotional state. Thirty participants (undergraduate psychology students) will complete four word-list memorization tasks. A two by two ANCOVA with emotional reactivity and odor sensitivity as covariants will be used to analyze memory intrusions from the various conditions. These intrusions will be used to estimate connections between odor, emotion, and memory. Discovering whether

memory or emotion is triggered first and then triggers the other will help us understand more of the specific details of the relationship between odor, memory and emotion and give insight to the neural connectivity between the olfactory cortex, amygdala, and hippocampus.

Madison M. Skudlarek (Rodger Narloch, Psychology) Shyness, interpersonal trust, and gender: importance in identity

The purpose of this study was to determine differences between genders on trust and shyness. Participants were selected using convenience sampling, and completed an one-shot survey. Sixty-six male and 61 female undergraduate students participated. The findings showed women were shyer, but there was no significant difference in trust between men and women. There was also no relationship between shyness and trust.

Megan M. Solheid, Maddilyn C. Lindeman, Sarah M. Rossman, Megan M. Seipel (Janet Tilstra, Psychology) Narrative language development: an evaluation of measures

Narrative language includes the ability to create stories and retell information with adequate clarity and detail. For children, research findings suggest that narrative language serves as a bridge between spoken language communication and the more structured rules for literate, print-based language. Strong narrative language skills in school-age children are associated with stronger reading comprehension and school performance. In contrast, weak language skills are often noted in children with language impairment. One challenge of examining narrative language is that most measures are time consuming to administer. In this project, we compared a brief method for screening narrative language proficiency (the Test of Narrative Retell-TNR) with a lengthier method of measuring narratives (Test of Narrative Language-TNL). The TNL assessment was given as an initial standard comprehensive measurement to measure narrative comprehension, memory, and expressive language skills. The TNR stories are less involved assessments and a quicker way to assess narrative language skills. In this project, a set of three TNR stories, either an original or revised version, were administered in each of three sessions throughout the school year. The purpose of this project was to compare the validity of the TNR stories with participants' TNL scores (construct validity), compare the reliability of TNR scoring by highly-trained clinicians (speech pathologists) and college-level trained administrators, and to observe whether TNR median scores showed growth in the three different assessments. Forty-two second-grade students participated in this project. Preliminary results indicate strong reliability between raters and across groups of scorers and moderately strong construct validity with the TNL.

Jasmine (Chi Man) Tang (Michael Livingston, Psychology) Correlation between Facebook usage and loneliness and depression

Eleven and one-half percent of the world populations are active users of Facebook and there is a serious lack of psychological theory relating to functions or effects of Facebook. The current study aims to investigate how the use of Facebook influences loneliness and depression. This study invited 257 participants to complete an online survey. The results showed that people with more Facebook friends tend to be less lonely. And the more time spent on Facebook predicts a higher level of loneliness and depression. Our results also revealed that there is no gender differences in total time spent on Facebook and number of Facebook friends. Further research on how Facebook users can be best benefited by Facebook should be conducted. It is also hoped that research on other social networks will be carried out.

Travis C. Truhler (Michael Livingston, Psychology) Campus and community well-being

The current study focuses on subjective well-being and the influence engagement in intentional activities may have on individual well-being. This study specifically looks at the engagement of college students in on- and off-campus activities. This study coupled with previous research can help researchers better understand the relationship between well-being and intentional engagement. In this study we hypothesize that individuals with higher and more varied levels of engagement will have a higher subjective well-being than other participants.

This study considers an individual's ability to influence their own well-being. If individuals can know that participating in certain activities can actually increase their well-being they may have a greater motivation for intentional engagement.

Measuring subjective well-being can add useful data in the quality of life within an organization. This information should be included in policy deliberations within an organization in order to ensure community well-being is taken into account when new services or projects are planned. If an organization can have a positive impact on the well-being of its members it is sure to have a positive effect on the organization as a whole.

Hayley J. Van Gelder (Rodger Narloch, Psychology) Trust, shyness, and regret: Do shy people have more distrust and regret?

The current study attempted to uncover relationships between shyness, trust, and regret as personality variables. Researchers administered surveys to a convenience sample of 128 participants from a small, private, liberal arts university with a split-campus by gender using a one-shot design. The data showed that those who were shier had more regret. However, there were no significant linear relationships between regret and trust or between trust and shyness. The results indicate that shy individuals make more

omissions in social situations and therefore have more feelings of regret as a result.

Natalie E. Vasilj (Rodger Narolch, Psychology) The relationship between self-concept clarity, shyness, and Facebook friends

The focus of this one-shot survey study was to explore the relationship between self-concept clarity and shyness, and their relationship with the number of Facebook friends one has. Researchers distributed surveys, collected, and analyzed data from 128 individuals from a joint female liberal arts college and male university. The findings showed that self-concept clarity and shyness were negatively correlated. However, there was no correlation between the number of Facebook friends with shyness or self-concept clarity. Although self-concept clarity and shyness were related during face-to-face interactions, the internet may be changing the way these characteristics traditionally relate to communication.

Charles F. Woodruff (Rodger Narloch, Psychology) Alcohol consumption's relationship with sensation-seeking and self-concept clarity

The purpose of this study was to find relationships of amount of alcohol consumption with sensation-seeking and self-concept clarity. A convenience sample of college students (N =62) took part in this one-shot survey. Alcohol consumption was found to have a positive linear relationship with sensation-seeking. Self-concept clarity was not found to have a linear relationship with alcohol consumption.

Service Learning

Sergio Aguilera, Travis J. O'Connell (Marah Jacobson-Schulte, Service-Learning) Comedy for a Cure

Comedy for a Cure is comedy charity event with the purpose to raise awareness and funds in order to find a cure for Huntington's disease(HD). HD is a neurodegenerative genetic disorder that affects muscle coordination and leads to cognitive decline and dementia.

Maria K. Anderson (Marah Jacobson-Schulte, Service-Learning) Bonner Leader Program

Poster representing events promoted and hosted by the Bonner Leaders Program

Jackie O. Carlson, Adia M. Zeman (Marah Jacobson-Schulte, Service-Learning) Service-Learning

The Service-Learning poster will highlight the relationship between the office of Experiential Learning & Community Engagement, students, faculty, and community partners.

Jackie O. Carlson (Marah Jacobson-Schulte, Service-Learning) Bonner Leader Program

The Bonner Leader Program poster will shine light on the work that the Bonner Leader Program has accomplished throughout the 2011-2012 academic school year. There will be information provided about the Bonner Leader Program as well as information on how to co-sponsor events with our program.

Colin Frederick (Marah Jacobson-Schulte, Service-Learning) College of Saint Benedict Marie and Robert Jackson Fellows Program

This past summer, the College of Saint Benedict Marie and Robert Jackson Fellows Program provided me with the opportunity to work as an International Justice Program intern with the Advocates for Human Rights.

Throughout my internship with the Advocates, I was able to broaden my perspective on international law from a home office angle and cohesively assist in addressing and confronting issues affecting human rights as well as placing a greater emphasis on promoting the respect for human dignity. This experience allowed me to produce three country briefs and a report on Ethiopia, which was published and discussed during the country's review before the United Nations Human Rights Council in Geneva.

In addition, the College of Saint Benedict Marie and Robert Jackson Fellowship has placed me within an environment that has cultivated and sharpened skills in leadership media relations, entrepreneurship, public speaking, marketing and grant writing, but most importantly facilitated the opportunity to spread civic engagement in human rights to the wider community and environs.

Meghan C. Helmbrecht (Marah Jacobson-Schulte, Service-Learning) Kid Packs

Kid Packs poster represents the service activity the Bonner Leader Program sponsored that encouraged students to donate excess healthy snacks before the holiday break for kids in need. This activity raised awareness on hunger in the St. Cloud community, and gave the students at CSB/SJU the opportunity to take part. The Kid Packs were donated to Discovery Elementary School students who receive free or reduced meals and may be without food over school breaks.

Galen R. Himrich (Marah Jacobson-Schulte, Service-Learning) Human trafficking 101: from issue to impact

Poster will highlight the issue of human trafficking — what it is, the impact it has in Minnesota, and the path to becoming an advocate.

Evan M. Lowder (Marah Jacobson-Schulte, Service-Learning) Ramsey County Mental Health Court internship

This poster will describe my Jackson Fellows-funded internship at the Ramsey County Mental Health Court in St. Paul, Minn. The Ramsey County Mental Health Court is a problem-solving court designed to reduce recidivism for offenders with mental illness by connecting them with a myriad of community-based mental health treatments and supports. As part of my internship, I supported the day-to-day functioning of the court, completed several independent projects, and visited a host of external sites to enhance my internship.

Katherine A. Maguire (Marah Jacobson-Schulte, Service-Learning) Kennedy KIDSTOP

Kennedy KIDSTOP is an afterschool program providing children with activities such as arts and crafts, social recreation games, and gym games. KIDSTOP is one site students from the Bonner Leadership Program may work to fulfill their work award.

Isaac J. Meyer (Marah Jacobson-Schulte, Service-Learning) Jackson Fellowship poster describing my work at St. Cloud Area Legal Services.

Chelsea R. Parker, Kelsey E. Minten (Marah Jacobson-Schulte, Service-Learning) WDYDWYD?

The Bonner Leader Program sponsored the WDYDWYD campaign on campus last fall. The goal of this campaign is to help people reflect on the question "Why do you do what you do?" We asked members of CSB/SJU to answer this question and also held an alumni panel. Our poster will outline the event and we will discuss the impact of this event on campus.

Melissa E. Pinkowski (Marah Jacobson-Schulte, Service-Learning) A mural for Waite Park

My Sophomore Topics art class and I participated in a Service-Learning project in which we had to design, pitch and create a mural for the Al Ringsmuth Library in Waite Park. We were separated into six teams of three and one design was chosen as the central template for the final design. My team and my design were chosen as the jumping-off design. We had to collaborate with the class to create the final product and plan how we were going to work on the mural. We worked on this project from October to early December. We all volunteered up to five hours per week

until the project was finished. We also worked on a children's mural that included the children of the community to get in on the painting fun.

Charles P. Rygh-Wallin (Marah Jacobson-Schulte, Service-Learning) Service-learning poster

My presentation is for Psych 360. It will feature in depth details of various things I observed and learned at my service learning site. I will focus largely on environmental factors. Specifically, I will be looking at how these factors affect attention and techniques/methods for handling situations in such an environment. I will further be describing my findings using various terms and studies performed by well-known psychologists such as Bronfenbrenner.

Leah M. Ranta (Leah Ranta, Service-Learning) Southside Boys and Girls Club

Through the Bonner Leader Program, we were able to apply for an off-campus service learning job working at the Southside Boys and Girls Club. We serve hundreds of kids from the St. Cloud community by running programs, tutoring, facilitating activities, and mentoring at-risk youth. One of the programs teaches a group for high school girls about nutrition and physical fitness. Other programs involve volunteering with Torch Club for 4th-6th graders, and working with adolescent youth through the program "Girls of Greatness." We have learned a lot through this experience, and hope to continue with it our next few years at Saint Ben's.

Emily C. Roberts, James M. Roane (Marah Jacobson, Service-Learning) Service-learning

This semester we have volunteered at Kidstop. Kidstop is offered to students in grades K-6 and provides a way for parents to give their kids a quality before- and after-school experience at an affordable price. Kidstop gives kids daily opportunities that parents know are vital for their child's healthy growth.

Jay and I are both in Comm. 348 Media and Children. This semester we've learned about the detrimental effects the media has on kids. Our goal is to make the parents and children at Kidstop more aware of the media's effects in order to ensure that they will have the most successful future possible.

Kellie K. Siembieda, Dillon A. Biel (Marah Jacobson-Schulte, Service-Learning) Service-learning

We served at Discovery Kidstop throughout the spring semester for our Media and Children class (Communication 348). Throughout learning

about media's impact on children in class, we will be sharing our experience working with Kidstop in a way that allows others to better understand the importance of limited media interaction with children. We will be describing our time at Kidstop, mainly, but possibly incorporating more information about media's impact on children and the ways we saw this impact during our service learning experience.

Jennifer A. Stevenson (Marah Jacobson-Schulte, Service-Learning) Jackson Fellowship summer 2011

This poster shares the goals and experiences from my summer fellowship through the College of Saint Benedict Jackson Fellowship Program. During the summer, I held a 10-week internship at the Children's Museum of South Dakota and Brookings, S.D. Come see about what I did and learned through this memorable experience.

Youa Yang, Alicia Renstrom, Galen Himrich, Adia Zeman, Jackie Carlson (Marah Jacobson-Schulte, Service Learning) Service-learning

I am presenting a poster on academic Service-learning which is a program at the College of Saint Benedict/Saint John's University that connects students to the community. Students go out into the community to serve at a site with the knowledge they learn in their classrooms and then bring back to the classroom what they learned at their sites.

Adia M. Zeman (Marah Jacobson-Schulte, Service-Learning) Jackson Fellowship: Lyric Arts Theater

This poster details the work I completed as a part of the Jackson Fellowship at Lyric Arts Theater of Anoka. Lyric Arts is a 501(c)3 non-profit and is the only full-time community theater in the northern suburbs. As a part of my fellowship, I created a marketing plan, assisted with event planning and implementation, created social media outreach, and wrote and distributed press releases among other activities.

Natural Sciences, Humanities Poster Session

Biology

Wendy Buermann, Kelsey Puhalla, Jamie Tessier (Kristina Timmerman, Biology)
The ecology of flying squirrels on the Arboretum Nature Reserve

Flying squirrels are nocturnal denizens of the hardwood forests surrounding Saint John's University. Three Saint Benedict students are investigating the ecology of this animal during Spring Semester 2012. The investigators (Buermann, Puhalla and Tessier) will present information on where squirrels are found, if there is any association between forest age and presence of squirrels and a review of the estimated population size. Information from these three studies will be compiled into one poster (and therefore will be an excellent summary of our work!).

Dalton C. Buysse, Christopher J. Hagen (Barbara May, Biology) Mayo Innovation Scholars Program

The Mayo Innovation Scholars Program is collaboration between Mayo Clinic, Minnesota Private College Council, and the Medtronic Foundation. The objectives of the program are to assess a product or idea proposed by researchers and physicians at Mayo Clinic and to provide research and leadership opportunities for undergraduate and graduate level students. Teams comprised of four undergraduates and a graduate team leader assesses the potential of the given project. The undergraduate team consists of both science and business majors in order to analyze the idea from different perspectives. This interdisciplinary approach helps explore both the scientific and medical implications as well as the market viability of the project.

Our project focused on the possibility of remote care applications in a prenatal setting to expand accessibility to care and improve the patient experience. To do this, we examined the patient's physical and virtual experience in the current prenatal care model at Mayo Clinic. We then explored possible remote care devices and virtual tools that could be integrated into a new care model. Based on this research, we made recommendations aimed at enhancing prenatal care at Mayo Clinic.

Gannon C. McGrath (Barbara May, Biology) Cellulose degradation in biofuel production

Cellulose is a major polysaccharide of glucose and is found in most plants to provide structure and support. Cellulose is among the most abundant organic compound in the biosphere as some 1015 kg of cellulose is synthesized and degraded on Earth each year. This is an amount 1,000 times as great as the combined weight of the human race. Cellulose is an interesting polysaccharide to study because the cellulose can form chains linked together through β -1,4 linkages that can only be broken by enzymes called cellulases. Mammals lack cellulases and cannot degrade the cellulose

found in wood and other plant fibers. Therefore, to understand the biochemical pathway of cellulases, bacteria, such as *Cellulomonas flavigena*, are good models. One of the consequent byproducts of cellulose degradation is glucose, which is an important sugar in biofuel production. In making biofuel, glucose is fermented to ethanol and utilized as an energy source. This project examines the DNA genome sequences of *C. flavigena* to map the important protein-coding genes known to play an important role in the metabolic process of cellulose degradation. The genes coding for proteins involved in cellulose degradation were identified and then annotated. To accomplish this, freely available bioinformatics programs, like the Basic Local Alignment Search Tool (BLAST) program, were used to predict the function of important cellulose genes in the *C. flavigena* genome. This process included finding regions of local similarity in DNA sequences of *C. flavigena* to other DNA sequences found in databases. BLAST then calculated the statistical significance of matches which were used for inferring the functional and evolutionary relationships between these sequences. By understanding the complete biochemical pathway of cellulose degradation, this copious organic compound may potentially lead to revolutionary advancements in the production of ethanol as a biofuel.

Gannon C. McGrath (Barbara May, Biology) Innate immunity: the complement system's effectiveness on different bacteria

Innate immunity is important in order to rapidly generate an initial response to almost any pathogen by either eliminating it or at least containing it until the slower, more focused adaptive immune response can develop. The complement system is an important component of the innate immune response. One crucial role of the complement system is the lysis of pathogens. Analysis of complement has shown non-specificity toward pathogens suggesting it is equally important in the clearance of both Gram-positive and Gram-negative bacteria from the host. However, the structural differences between Gram-positive and Gram-negative bacteria, such as the differing thickness of the cell walls, may cause disparity in the effectiveness of the complement system's ability to lyse these two types of bacteria. By measuring growth of both Gram-positive (*Staphylococcus aureus*) and Gram-negative (*Escherichia coli*) bacteria exposed to human serum and comparing to a control growth of the same bacteria not exposed to human serum, this study shows that complement plays an important role in the lysis of both of these types of bacteria. However, by inhibiting the serum with an anti-C3 antibody (an antibody that inhibits a critical complement protein called C3), this study shows that complement is more effective at lysing Gram-negative bacteria than Gram-positive bacteria, suggesting that some other component of the innate immune response, other than complement, must play a larger role in the lysis of Gram-positive bacteria than in the lysis of Gram-negative bacteria.

Cody J. Groen (Stephen Saupe, Biology) Preliminary study of airborne mold spores in Peter Engel Science Center

The purpose of this experiment was to measure airborne mold spores in Peter Engel Science Center. This experiment was done because of a mold growth problem in the Peter Engel Science Center in the summer of 2011. The building was cleaned during January 2012. A Bioaire air pump was used to collect samples on Allergencocassettes, and analyzed microscopically to determine the mold spores per cubic volume of air. Results will be presented.

Kevin Healy, Taylor Zallek, Ethan Evenson, Aaron Remer (Gordon Brown, Biology) Comparing the density of invasive lionfish (*P. volitans*) in novel and natural near-shore environments on the island of San Salvador, Bahamas

In the last 30 years, the Indo-Pacific lionfish (*Pterois volitans*) has become a highly invasive species in the Caribbean and western Atlantic. In the archipelago nation of the Bahamas, lionfish have been documented in a variety of near-shore environments, including coral reefs, sea grass beds, and mangroves. Lionfish are of growing concern in the Caribbean because they are a voracious generalist predator and have been shown to reduce recruitment and abundance of economically important reef fish. The purpose of our study was to compare the density of *P. volitans* in man-made environments and natural patch reefs as well as characterize the amount of cryptic space that each habitat provided. The results of our study show that some unique characteristics of man-made environments provide lionfish with more cryptic space than natural reefs and allow for greater densities. Our study sites were located on the northern end of the island of San Salvador, located at 24° 3'N latitude and 74° 30'W longitude.

Computer Science

Michelle T. Hromatka, Katelin E. Weiers (Lynn Ziegler, Computer Science) Color constancy: simulating the brain's detection of color

The ability of the brain to correctly assess an object's color under differing light projections is a fascinating issue to consider. Despite viewing grass at different times of day, we see grass as green when the projected light is primarily red (dawn) versus white (noon). It is relatively unknown how the brain is able to correctly determine color values under different lighting. We attempt to simulate the brain's role in color detection by using a simple computer program to adjust the image from a colored-image scheme to a white-color scheme.

Becca L. Simon (Michael Heroux, Computer Science) Exploring spectral methods for graph partitioning

Social networks have become a hugely powerful form of communication in today's world. The underlying structure of these networks contains natural groupings of people with strong connections to each other. This research uses spectral methods for uncovering these clusters as an alternative to the standard k-means clustering method.

Environmental Studies

Kayla R. Altendorf (Derek Larson, Environmental Studies) The promise of perennials: wheat as a sustainable crop in Minnesota

Our nation's agricultural soils are being lost at unprecedented rates due to conventional tilling practices and the resulting long-term soil exposure. The extensive root systems, year-round cover, and deposition of plant material in perennial fields protect the soil and aid in its production. Current research and plant breeding is currently underway to develop a perennial grain crop that would improve the sustainability of our industrial agricultural system and while continuing to supply our demand for conventional grains. This project focuses on the benefits of perennial agriculture, with a case study, which examines the specific barriers and potential solutions to planting perennial wheat in Minnesota. If we are to overcome these barriers, planting perennial wheat could bring about a host of ecological benefits including but not limited to decreased soil loss, improved soil fertility, reduced pesticide and fertilizer inputs, and so on. Using current research from the Land Institute on the latest developments in breeding perennial wheat cultivars, scientific articles that examine the ecological benefits of perennial fields, and interviews with wheat farmers in Minnesota, I have found that there is great potential for improved agricultural sustainability in Minnesota via perennial wheat. The implementation of perennial grains into Minnesota's agricultural economy could serve as an example for the rest of the nation.

Matthew P. Capecchi (Derek Larson, Environmental Studies) Winged warriors: the battle against waterfowl collapse in Minnesota

The Mississippi flyway is a key route for many species of migratory birds from Canada down through Mexico. In the late 1800s many commercial hunters were lured to Minnesota due to its strategic location and convenient railroad system to the east. In early years waterfowl were harvested by the thousands, greatly eradicating Minnesota's stock of ducks, geese, and several other varieties of waterfowl. Then in the 1920s regulation and conservation efforts were launched in order to make waterfowl hunting sustainable. However, regulation alone fails to address ecological problems such as habitat destruction and agricultural drainage. Groups such as Ducks Unlimited, The U.S. Fish and Wildlife Service, and the Department of Natural Resources have in recent years contributed greatly to the fight

against waterfowl depletion. However, in order to aid waterfowl recovery, wetlands must be conserved and restored more effectively in order for a recovery to take place. The main factors contributing to the destruction of natural habitat include agricultural drainage, invasive species, and urban expansion. Together these elements lead to loss of wetlands, depletion of food sources, and disease which all put negative pressures on waterfowl and other wildlife native to Minnesota.

Taylor M. Ellison, Brittini R. Latterell (Larry Davis, Gordon Brown, Environmental Studies) Anthropogenic debris survey on East Beach, San Salvador Island, Bahamas

A survey of anthropogenic (human) debris deposition was taken from East Beach, on San Salvador Island in The Bahamas. The sample area was 30x15 meters and started at the high tide mark moving toward the back beach. Within this area, three subsections of 10x15 meters were marked off. Within each subsection, three trash samples were collected from the sea grass using a quadrant with an area of 66x66 inches. This will be used to estimate trash trapped within the sea grass. Also included was a 1x30 meter area in the vegetation. Any trash visible was collected. Anything from micro plastics (<1cm) upwards was collected, keeping the trash found within the quadrants, vegetation, and general area separate. Since San Salvador is on the eastern edge of the Bahamas Archipelago the debris builds up on the east coast due to currents and wind. A few days after the initial clean-up, a very brief follow-up survey took place to see if any additional rubbish washed up onto the beach. The trash collected was separated into varying categories including but not limited to hard plastics, bottle caps, tar balls, and rope. These categories were further separated into size categories ranging from micro plastics to trash greater than 40cm. Each category was then weighed. Finally, these categories were added together to get a total weight of the debris found.

Robert S. Gabrielson (Derek Larson, Environmental Studies) Endangered Species Act Dilemma: Minnesota's Gray Wolf delisting problem

The Endangered Species Act is equipped with a delisting process for species that have achieved their population goals set by the U.S. Fish and Wildlife Service. The delisting process was not, however, equipped to deal with politically controversial species. This inadequacy has caused certain species to become difficult to delist. Minnesota's gray wolves, despite full population recovery, retained "threatened" status for several years before being formally delisted on January 27, 2012. The Act's inadequacy to deal with controversy created a delisting dilemma for the gray wolf in Minnesota. The Endangered Species Act is intended to protect species from becoming extinct, not to determine whether a species should be protected because of its interaction with society. For future successfully recovered species, the Endangered Species Act needs to be changed to assure biological rather than political consideration.

Susana E. Gonzalez (Diane Veale-Jones, Derek Larson, Environmental Studies)
The excesses of corn: policies, practices, and problems

The corn industry is an unsustainable industry that has been causing many negative environmental, social, and economic impacts. Soil erosion, air and water pollution, obesity, and corporate political power are some of the diverse, yet linked problems the industry and its overproduction of corn is causing. Yet, the root problem to the overproduction of corn and its many different problems can be traced back to the political process behind farm policies. The research questions that guide this thesis are: How did the corn industry become unsustainable? What obstacles prevent it from becoming sustainable? How can the obstacles be overcome to achieve a sustainable corn industry? Farm policies have not encouraged a sustainable way of producing corn, therefore the overproduction of corn and its negative environmental, social, and economic impacts should be discouraged by properly allocating the funding within the programs of the upcoming 2012 Farm Bill. The methods of research for this thesis mainly involve literature review and analysis of data of farm policies in the 21st and 20th centuries. Findings demonstrate that the allocations of funding within some of the programs of the Farm Bill are connected to the overproduction of corn and its negative impacts. The key solution for the problem relies on changing the political process behind farm policies in a way that allows the Farm Bill to properly allocate funding within its programs in order to conserve soil, incorporate more fruits and vegetables in the American diet, and protect farmers from the influence of large corporations.

Abbey J. Haugen (Derek Larson, Environmental Studies) Diversifying local: expanding the local food movement to include culturally appropriate foods

The local foods movement, while offering numerous environmental, economic and social benefits to its consumers has been criticized for being limited to primarily white, affluent consumers. Thus, an integral problem when considering the expansion of the movement and its relativity to social justice principles is the following question: How can the local foods movement be more culturally inclusive? Local access to culturally appropriate foods such as those necessary for the traditional diets of various ethnic groups in the United States addresses this problem. An extensive literature review of the local foods movement as well as original research was conducted in order to determine the extent of, and solutions to the problem. A case study of the local availability of foods needed for the traditional diet of Hispanic immigrants in Minnesota provides the original research component of the project. The case study illustrates the lack of local access for culturally appropriate foods and suggests that the local foods movement has to make significant changes to become more culturally sensitive. Educating local producers and consumers on the benefits of local foods while also providing incentives for both to provide

and purchase local ethnic foods can help combat this problem. Additionally, governmental policy should shift to encourage broader access to local foods for low-income and culturally diverse consumers.

Aaron J. Holland (Derek Larson, Environmental Studies) Utilizing the sun: improving the market for residential alternative energy in Minnesota

This project is designed to investigate the steps that are being taken within Minnesota to develop a transition from traditional fossil fuel technologies to more sustainable clean energy technologies. Also, this project explores the alternative energy technologies that provide the most cost effective option for homeowners in Minnesota. Finally, this project seeks to provide insight in to changes in attitudes, policy, and practices that would better promote economically competitive alternative energy markets.

Austin G. Jacobs (Derek Larson, Environmental Studies) Fishzilla: managing the Northern Snakehead in the Potomac River Watershed

The management of aquatic invasive species has always posed a problem for government officials. Aquatic ecosystems are not easily studied, control options are often ineffective or do extensive damage, and many methods are costly and time consuming. The northern snakehead, *Channa argus*, is one invasive species that has made a splash with the media in recent years. The hype about the northern snakehead has only served to highlight the issue with aquatic invasive species management and has also shown how outside factors may negatively influence management options. The management of the northern snakehead needs to more accurately reflect the fact that the fish cannot be eradicated from the Potomac River tributaries. *Channa argus* should be integrated into the ecosystem under a watchful eye and viewed as a regular sport fish unless future studies prove it to be a significant threat.

Brittini R. Latterell (Derek Larson, Environmental Studies) Coral Reefs: devastating declines from human activities

The purpose of this research is to provide information to the many people who do not understand that their daily activities are slowly causing coral reef ecosystems to vanish. These daily activities introduce threats which include non-anthropogenic threats, which will be mentioned but not elaborated on, and anthropogenic threats, which will be categorized into direct and indirect threats. Methods of acquiring this information consist of a broad look at literary sources about the basics of coral reefs, then a broad look at the threats which will lead to a specific example and wrapping up with an assessment of where else this example occurs. Another method to gather information will be from my personal research done in the Bahamas, which focuses on local areas that use the reefs as a significant way of

surviving (using them as a main source of food and income). I will close with addressing the problems that will arise if nothing is done soon, and how to overcome any barriers.

Jessey A. Niyongabo (Derek Larson, Richard Bohannon, Environmental Studies)
Sustainability in the Congo Basin Forests: a better way to ensure better management of resources

The Congo Basin forests constitute the world's second largest tropical rainforest after the Amazon. These forests host about 400 species of mammals, 1000 species of birds, 200 species of amphibians, 300 species of reptiles and more than 900 species of butterflies (Boitani, 1999; Frost, 2006). However, the mismanagement of the forests coupled with subsistence food commercial logging, clearing for subsistence agriculture and widespread civil strife has devastated forests, displaced forest dwellers, and resulted in one of the world's most threatened ecosystems. Although the average deforestation rates in the Congo Basin is comparably low, research in the Congo Basin Forests showed that this trend has changed dramatically in the past three decades. It would be vital to evaluate how sustainability can be addressed as a way to better manage the Congo Basin Forests. Considering effects of socio-economic and environmental damages seem to be a challenge to the administrations of the member countries of the Congo Basin. Indeed, the uncontrolled expansion of agriculture and mining, and the development of other sectors including industrial, transport and energy have modified the Congo Basin forests. Unsustainable practices due to social unrest bringing the overexploitation of natural resources have changed the landscapes. Developing preservation resources laws and regulations locally, regionally and internationally would give the developing countries of the Basin a better management system. Both collecting data from various authors including, but not limited to, the World Bank and the Central African Forest Commission, and interviewing specialists from different stakeholders have contributed to this research. In addition, literature review and a qualitative analysis allowed a better understanding of the issues and the possible solutions. The Congo Basin countries would need to strengthen national and international laws and regulations, and put in place more developmental programs pertaining to alleviate poverty infringing on the sustainability of the forests. In this study, it is important to look into ways the Congo Basin governments could maintain sustainably their shared forests. The Congo Basin countries ought to address their internal issues including democracy, indigenous rights issues and civil war as well as the countries' pace of development in order to better ensure that the forests are sustained and their resources, well managed.

Kristina M. Schammel (Derek Larson, Environmental Studies) The future Farmer's Almanac: climate change and the future of farming in Minnesota

This study examines the implications of climate change on farming practices in Minnesota. Climate models predict high variability in global temperatures and precipitation levels as a result of climate change. Increasing climate variability leads to uncertainty in the agricultural sector and has the potential to affect global food production. By reconstructing climate records and farming practices over the past century, this study will attempt to analyze adapted farming methods and practices in the state of Minnesota in correlation with increasing climate variability. These findings will create a forecast for the future of farming in Minnesota. Through the analyses of past climate records and agricultural practices, predictions can be made to better understand future climate behaviors and crop reactions thereby eliminating uncertainties and allowing farmers to more efficiently and sustainably adapt to changing climate conditions

Jared M. Smith (Derek Larson, Environmental Studies) Rethinking the wall: a comparison study and decision-making tool for alternative home construction

Heating and cooling of buildings accounts for nearly 40 percent of the United States' energy usage, while an estimated 40 percent of the world's annual raw material consumption is also used for the construction and repair of our built environment. An increasing demand for more durable, energy efficient homes necessitates a closer look at the way residential homes are built. While many building methods are available to the potential homebuilder, few systems are in place to help one decide which method is most suitable. This paper explores four popular methods for wall building: stick frame, straw bale, structural insulated panels (SIPs) and insulated concrete forms (ICFs), and compares them using eight different criteria: cost, environmental impact, energy efficiency, interior air quality, social impact, speed of construction, durability and aesthetic. A tool is proposed to aide an owner/builder in choosing between the four options based on a prioritization of the eight criteria, and case studies are presented for each of the building systems.

Aaron B. Stolte (Derek Larson, Environmental Studies) Deep fried to free ride

My project involves researching the feasibility of recycling and refining waste vegetable oil as a biofuel. There are several small scale ventures that utilize the oil as a productive fuel source and I am investigating to see if this process can be done at a more large scale level.

Michael R. Wallace (Derek Larson, Environmental Studies) Sustainable options for achieving food security: a focus on Kenya

Industrial agriculture brought on by the green revolution has led to immense increases in agricultural production at high environmental costs. Even though the revolution brought higher agricultural yields, food insecurity, malnutrition and starvation are still prevalent in low-income

countries. Are there alternative agricultural systems that can increase food security without degrading the environment? This study will use Kenya as a model for how such a system could be implemented in a low-income country. By endorsing organic agriculture, the Kenyan government can increase the production of its smallholder farmers, even in the face of adverse environmental conditions. Community knowledge-sharing implicit within organic agriculture can also address social issues that have stymied agricultural growth, such as gender disparities and land rights inequalities. Kenya's past agricultural policies, reports on the country's environmental conditions, land use patterns and past social organization methods will be used to determine the conditions of sustainable agriculture within Kenya. The government will have to focus on creating market opportunities, establish a weather monitoring system, train farmers in organic agriculture techniques, promote farmer-to-farmer knowledge sharing and create an irrigation system for sustainable agriculture to work. Through these policy conditions, sustainable agriculture can decrease food insecurity and poverty in Kenya without causing environmental degradation.

Mathematics

Jessica S. Solfest, Marie E. Meyer (Kris Nairn, Mathematics) Mother Nature's fish fry

Ecosystems are directly affected by the fluctuating climate due to global warming. This project focuses on the effects of climate change on local fish populations in the Great Lakes. We model behavioral response to climate change of warm-, cool-, and Coldwater fish species. Climate change is measured through average water temperature, ice coverage, and water level of the Great Lakes over time. We measured the effects of climate change through population data of each species. We use this model to predict which species are doomed to extinction and which ones will survive.

NATS

Madeline R. Hansen, Jared S. Hromatka, Rachel C. Stobb (Gordon Brown, Larry Davis, NATS) Barker's Point Tombolo

In this project, we studied the Barker's Point Tombolo located off the Northwestern shore of San Salvador, Bahamas. A tombolo is a geological strait-like feature that forms between small islands close to shore. In this study we measured the effects of a multi-day storm on tombolo formation and compared these results to data collected four days later once it had time to reform. The measurements focused on determining the major factors contributing to the sediment deposition that created the tombolo.

Patrick Deal, Weijia Li, Alaa A. Norain, Gordon Brown, Larry E. Davis (Larry Davis, NATS) Shallowing-upward sequence exposed in a patch reef

A Pleistocene-age patch reef in the Grotto Bay Formation is exposed in a sea cliff along the eastern margin of Grotto Bay, San Salvador Island, Bahamas. The shallowing-upward sequence can be observed beginning near the water's edge with a coralline framestone constructed primarily of *Porites* cf. *astreoides* and large coral heads of *Diploria strigosa* and *Montastrea annularis*, which indicate a subtidal environment. The patch reef is capped by a calcareous red algae bafflestone of *Neogoniolithon strictum*, which indicates a shallowing of the water to the subtidal/intertidal interface. The overall sequence is overlain by an eolian grainstone, consisting of well-rounded, well-sorted fragments of molluscs, echinoderms, and cnidarian fragments. Periodic tempestites (storm deposits) of coarse-grained biological fragments (rudstone) can be observed within the eolian sequence are interpreted as being associated with hurricane overlaps of the prevailing eolian deposition.

Physics

Alyssa C. Anderson (Jim Crumley, Physics) The probability of supernovae causing mass extinction on Earth in the near future

Based on paleontological evidence of mass extinction caused by a supernova in the world's history, this project attempts to predict the likelihood of a similar event large enough to cause mass extinction on earth occurring in the near future. Using mainly "Fermi estimates," the probability is found through analysis of the stars currently recorded near enough to Earth to cause an event. From this, the number of stars likely to become type 1a supernovae is found. Last, data from history shows the time frame for how often an event this large may occur. The final probability indicates that an even within 33 light-years (close enough to cause mass extinction on Earth through damage to the ozone layer) is extremely unlikely within the next 100 years, but has about a 1.3 percent chance of occurring within the next two million years.

Kathryn A. Barclay (Jim Crumley, Physics) Mass extinction due to comet impact

We had to determine the probability of mass extinction due to comet collision in the near future. We initially attacked this problem by building a rough equation for the probability based on variables such as the number of comets large enough to cause damage and the probability that they would come into contact with the earth. We then began research on types of comets and their location in our solar system. After our initial research we were able to eliminate many variables due to their insignificant effect on the equation. We discovered an equation used to calculate the probability any given near-earth asteroid will hit the earth and adapted this for comets. Then we used the number of earth crossing comets along with our knowledge of what size would cause mass extinction to calculate our

probability. Afterwards we explore the (many) possible sources of uncertainty as well as what effect an impact of this magnitude would have on earth.

Alexandra M. Brancale (Jim Crumley, Physics) Mass extinction due to a Gamma ray burst

My poster will describe the likelihood of a mass extinction on earth due to a Gamma ray burst. Part of the poster will be dedicated to describing what a Gamma ray burst is. Then, I will display the information we collected on the theories that have already been proposed of mass extinctions due to Gamma ray bursts. Next, I will display the different equations used to calculate the probability of this occurrence. These equations use estimates of radiation density, density of a typical galaxy, and event rates. I will display some graphs of our information that represent the probabilities for a visual component. My favorite part of the presentation is the part where we predict what would happen if a Gamma ray burst were to hit the earth.

Robyn A. Hall (Jim Crumley, Physics) Gamma-ray bursts

Gamma-ray bursts are a type of astronomical event that emits high-energy light waves. Gamma-ray burst detectors are able to record the time of detection, but no directional information. This project demonstrates one way of calculating the possible locations from which a Gamma-ray burst could have originated. The difference in time recorded by different Gamma-ray burst detectors is used to calculate the position in the sky from which a Gamma-ray burst originated. For each pair of detectors used, a circle can be located in the sky, representing the possible positions of the origin of the Gamma-ray burst. By using as few as four detectors, this region can be restricted to a single angle. Also, the uncertainty ranges were calculated. This method was then applied to sample data.

Macaela T. Karnick (Jim Crumley, Physics) Ecology simulation

An ecology consisting of foxes, rabbits and cabbages have many relationships between the different species. The rabbits eat cabbages, the fox eat the rabbits, too many rabbits make fewer cabbages and too many foxes make fewer rabbits. To simulate this relationship, we used a mathematical model with three equations that represent the number of each creature after n time units. These equations were based on the number of the other creatures and other constants demonstrating their relationship within the ecology. Using those models and a program in Matlab we were able to design a simulation to identify different scenarios within the population. By changing the constants in the equations we found several interesting scenarios including an equilibrium behavior, catastrophe and more.

Lisa A. Knappek (Jim Crumley, Physics) Super volcanoes — are we at risk?

A super volcano is a volcano capable of producing a volcanic eruption which can eject a volume greater than 1000 cubic kilometers. The eruption of a super volcano has devastating effects on its surroundings. The goal of this project is to see if the chance of a super volcano erupting in our lifetime is high. We did this by analyzing data trends from super volcanoes ranging back to 49 million years ago. Extra focus was put on Yellowstone as this is the super volcano that would have the greatest impact on the United States. It appears that Yellowstone is due to erupt at any time based on previous eruption patterns, but based on geological signs, it is unlikely that an eruption will occur in the near future.

Amanda S. Luby (Jim Crumley, Physics) Programming Lego robots: the zigzag method

For this project, our task was to program a robot with a light sensor to follow various paths, mapped out on the floor with tape. These paths included a hexagon track, a square track, a triangle track, as well as a "racing track." After determining the values for the light sensor, we developed a "zigzag" algorithm to get the robot to follow the paths by following the edge of the tape. If the robot was on the tape, it would turn left; if the robot was not on the tape, it would turn right. Our programs successfully navigated all of the paths, but with some alterations could have been a lot more time efficient.

Whitney I. Radil, Allison C. Reinsvold (Jim Crumley, Physics) Recreating GPS calculations

This semester we have been exploring techniques of GPS calculations. Our goal was to use raw data from the Global Sat BU-353 GPS receiving unit to recreate location calculations by writing a computer program in Mathematica or C++. We explored several different methods to recreate these calculations. We began by intersecting spheres created between the satellites and our positions. The radius of the sphere was determined by the time it took a signal to traverse the distance between the satellite and our position, and the center is determined by the position of the satellite. The second method used azimuth and elevation from our position to several satellites to estimate our location. After recreating calculations, we compared our calculations to those of the receiving unit. We also investigated error-causing effects, such as relativity, to attempt to improve our calculations.

Mariah D. Railsback (Jim Crumley, Physics) Simple ecology simulation

The objective of this simulation was to explore the different types of relationships between three species — rabbits, foxes, and cabbages. Python programming along with mathematical equations were used for each species. These equations involved constants for the population, the birthrate, the starvation rate, proportion of species being supported by the other species, and the rate at which one species consumes the other. We had to find constants and populations that led to interesting population dynamics. The three population dynamics we found and focused on were cyclical behavior, equilibrium behavior, and catastrophe.

Melissa E. Stuckey (Jim Crumley, Physics) Tsunami destruction probability

This project was to determine the probability that a massively destructive tsunami will occur in the next thousand years. We focused our research on the high-risk tsunami areas including Japan, California, Indonesia, the Mediterranean, Australia, Chile and Peru. We collected data from National Geophysical Data Center. Using the Poisson distribution method, we calculated the likelihood of tsunamis of magnitude four and higher on the Iida scale occurring in the aforementioned regions of the world. Our project led us to conclude that Indonesia was at the highest risk for the most destructive tsunamis in the next thousand years.

Becca L. Simon, Laura A. Nierengarten (Jim Crumley, Physics) Designing an intuitive drawing program using Arduino

Given a self-contained circuit board, Arduino, we embarked on the task of developing an intuitive drawing program. The idea of this program is that, given a portable power source, it can be used anywhere as a sort of "electronic coloring sheet." We wrote a program to enable the user to upload his/her image from an SD card on which to draw on the Arduino touch screen. This can range from coloring pages to more detailed images. The user has a palette of colors from which to choose. With tweaks to the program, even more colors may be chosen. Once finished with a drawing, the user has a choice between restarting on a blank image or drawing on their own blank canvas.

Kathleen K. Talbot (Jim Crumley, Physics) Gamma-ray triangulation

Gamma-ray bursts are short period of "gamma-rays" that can be detected on earth. In order to detect these gamma rays, several satellites can be placed to determine the direction and location of the Gamma-ray bursts. In order to do so, we used the "Triangulation Method" and found an annulus of solutions based on locations of satellites. With two or more satellites, we were more exact with our solutions when these curves intersected. This method helped determine the direction of the Gamma-ray burst.

Pa Woua Vang (Jim Crumley, Physics) Lego robot

In this poster, I will be using the Mindstorms Lego robot NXT. The NXT is the brain of a Lego robot that can be programmed to do almost anything you want it to. It doesn't matter whether you want it to move in just a straight line, in a square, or to throw a ball, the most important factor behind it is programming. This poster will be covering the algorithm of how an NXT robot works following a white line by using a color sensor to turn right and left in able to stay on track. This poster will also include samples of codes and the results.

Jenna M. Vogel (Jim Crumley, Physics) Probability of mass extinction due to an asteroid impact

There have been a number of substantial asteroid impacts throughout history, many of which resulted in extensive extinctions across numerous species. Quite possibly the best example of a catastrophic extinction is the Permian-Triassic Extinction which occurred 250 million years ago and destroyed nearly 90 percent of all species in existence at that time. But what are the chances of a similar mass extinction event occurring in the future? Using modern statistical software such as Minitab, as well as information concerning known near-earth asteroids, we have explored the probability of such an occurrence at various points in time throughout the next 60,000,000 years. The results demonstrate that an asteroid impact with mass extinction potential within this time is very likely.

Kelsey A. Weiers (Jim Crumley, Physics) Foxes, rabbits, and cabbage ecology simulation

The balance of nature is extremely delicate, and a slight alteration in the birth rate and death rate of interacting species can have dramatic effects on their ability to survive. In our simulation, we studied foxes, rabbits, and cabbage and how they interact in a food chain. We wrote and used a Python program to run through a variety of equations and find unique population change scenarios. The equations in our program relate the populations of the organisms, taking into account their birth rate, growth rate, and starvation rate. We solved the equations to compute what constants would give us different scenarios and created graphs from the population data that our program outputted. The graphs illustrate what happened to the population of the organisms in our simple ecosystem for each situation. By altering the birth and death rates for the three species, we were able to find a variety of interesting population scenarios including catastrophe, chaos, a stable fox population, and perfect equilibrium.

Fine Arts Presentations:

Art

Kramer, Alwin, Tomten, McEvoy, Haugen, Streine, Cornwell, Beaumer: Art major graduating seniors will present on their final senior exhibition art work.

Music

Campbell: When composers set a poem to music, music and poetry interact in a complex partnership to create meaning. Music may serve to embellish the text, to emphasize certain images or emotions, and ultimately to reflect the composer's interpretation of the poem. The text enhances the emotions expressed in the music and allows for an interaction between the vocal line and the accompaniment. However, this close interaction between music and poetry remains an unresolvable relationship as the poem's translation into music transforms the text into something completely new. This paper explores how Paul Verlaine's poem Clair de Lune is transformed by the strikingly different musical interpretations of Gabriel Fauré and Claude Debussy. It is all still Verlaine's Clair de Lune, yet each remains an independent work of art.

Ernst: This piece uses a combination of instrumental music, narration, and acting to tell the story of "The Secret Garden" by Frances Hodgson Burnett. Each character is portrayed by an instrument and a melody and the music tells the story just as much as the actors. It was performed in March both at Saint Ben's and the St. Cloud Public Library.

This is an honors thesis defense.

Theater

Knopf: I took playwriting as an independent study with Kaarin Johnston this past fall semester to practice the skills necessary to write a play. I chose to have my topic of this play be about suicide (the one/main character kills himself at the end) because I think that it is such an important issue in our world today. I wrote this story and did all of my research to better understand why suicide is such a problem for human beings, and to create a situation where someone killing themselves could be the right thing to do. I am not proposing that people should end their lives to solve life-long issues, but I rather desired to simply explore the mind of someone who really wanted to do it, and illustrate why this character thought suicide was the only thing left for them to do.

Neuwirth, Murphy, Ernst: Three students will have a panel discussion about their experience at the United States Institute for Theatre Technology conference in Long Beach, Calif. Topics will cover how this conference is beneficial to students,

an overview of some of the activities attended, and the importance of networking and professional development followed by a question and answer session.

Smoger, Anderson: Jenna Smoger and Brandon Anderson teamed up to produce the classic American drama “The Zoo Story,” by Edward Albee. Anderson played the major acting role while Smoger directed. Their presentation will include the audition and rehearsal process, photographs, and an overview of the production. The two, along with cast member Gabriel Drouet, are looking forward to an open dialogue with the attending students and faculty.

Sullivan: Initially, I set out to create a one-person theater piece about Monsignor Joseph Gluszek, a priest I knew when I was a child, and a man who influenced me greatly even after his death. He survived the Holocaust and without bitterness he forgave his captors. He chose pity instead of hate. As I began to write his story, I struggled with creating a captivating format to entice audiences and express the influence he had upon me. As a result, my writing style shifted, and I began to explore other forms of expression for the piece. I found poetry was a more meaningful form for me to pursue. During this presentation I will share my struggles and accomplishments with the playwriting process, the story of Monsignor Joseph Gluszek, and my relationship with him. This will be an open forum where faculty and students can ask questions about my playwriting experience. The time length should be 20 minutes.

Takata, Murphy, Neuwirth: After playing roles in the designs of CSB/SJU theater department productions this year, senior Kevin Murphy and juniors Nikki Neuwirth and Kate Takata will present on their experiences as student designers on-campus. Kevin was master carpenter for “A Christmas House” and technical director for “As Five Years Pass,” Nikki was lighting designer for both “A Christmas House” and “As Five Years Pass,” and Kate was lighting designer for “A Shayna Maidel.” Students may also speak briefly about related work done outside CSB/SJU.

Humanities Presentations:

Communication

Mortenson, Smelter, Twedt: Students from the fall 2011 sections of COMM385A: Love, Sex, and Commitment conducted a semester-long research project looking at perceptions of Facebook relationship status postings. Three students from those classes have elected to present a summary of the project. The presentation will focus on the process of completing the study as well as review some of the results.

The project represents a relational communication focused study designed to explore the significance of Facebook relationship status postings. The Facebook relationship status post is an option that Facebook users have to let other Facebook users know if they are in a romantic relationship, and if so, with whom. Specifically, the study explores the perceptions of this relatively new medium for communicating and creating relational commitment. Past research examining the social construction of commitment has focused largely on the communication that takes place interpersonally between the relationship partners. This study will help build on a tradition of relationship commitment research by expanding it to look at the role of social networking sites (specifically Facebook) in constructing relational commitment.

English

Betley: I will be giving an oral presentation highlighting racial violence in East St. Louis, Ill., during the summer of 1917. Using this summer as a model for representing the treatment of the black community in America during World War I, I will explore how blacks reacted, socially and politically, to racial violence during this time period. I will also include how these reactions helped to gain political traction for the black community leading up to the Civil Rights Movement. My presentation will be highlighted by images that will act to help tell the story of the injustices blacks faced during the World War I era.

Dolan: I will be presenting my English Capstone research paper. The paper is about 20 pages, and is a literary analysis that applies Guy Debord's theory of spectacle to William Faulkner's novel "Absalom, Absalom!" I will most likely read some parts of my paper, explain some parts, and give a general overview of Guy Debord's theory of spectacle.

Knox: This project explores the topic of black narratives on early jazz music. Using Sidney Bechet's autobiography as a guide, it is shown how these narratives often functioned on both progressive and regressive levels. Eric Lott's theories of "love and theft," in addition to scholarship on race and jazz music, are employed to demonstrate how whites responded to early jazz. It is shown that white audiences

both indulged in and were often repelled by this new music that was often painted as “primitive” or “exotic.” The narratives of black musicians such as Bechet also worked on these dichotomous levels. While pointing to a new era of freedom for black expression, these narratives also established jazz as being an authentic creation of the African-American spirit.

Mick, Schmidt, Witchen, Brenteson, Kaplan, Daly, Liu, Slivnik: Please join us for a reading of creative work written by young writers at CSB/SJU. Students will read from original works of poetry, fiction, and creative non-fiction that they have been developing over the course of this spring semester. These revised works demonstrate the range and skill of these young writers — and the many ways in which they have found voice through writing. Students will read from poems and/or excerpts of longer works of fiction or creative non-fiction. Bring friends and family. Refreshments provided!

Osterhout, Benson, Hayden, Deml, Stevens, McLean, Stobb, Zallek, Alkire, Beckius: Please join us for a reading of creative work written by young writers at CSB/SJU. Students will read from original works of poetry, fiction, and creative non-fiction that they have been developing over the course of this spring semester. These revised works demonstrate the range and skill of these young writers — and the many ways in which they have found voice through writing. Students will read from poems and/or excerpts of longer works of fiction or creative non-fiction. Bring friends and family. Refreshments provided!

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Vander Heiden, Mayhew: We argue for using historically and culturally distant texts — classics — as distant mirrors to grapple with contemporary ideologies. We encourage students to become critical readers of literature and their lived experiences. By catering to the average classroom’s diverse population and by incorporating theoretical lenses, relevant supplemental texts, and explicit language instruction, teachers can invent and reinvent their curricula to devote more time to the essential questions of a text. In so doing, teachers and students can dispel potential “boredom” and become engaged meaning-makers. The presentation will provide teachers with strategies to successfully teach classics, specifically Jane Austen’s “Pride and Prejudice” and William Faulkner’s “As I Lay Dying.” The presentation will consist of an outline of the “Pride and Prejudice”

and “As I Lay Dying” unit goals and strategies before leading into an interactive activity. The audience will practice using Twitter as a means to teach tone and irony. By using critical lenses, such as the gender and social class lenses, building strong background knowledge, and helping students to make meaningful and relevant connections, we try to bring these texts into students’ 21st century lives.

Hispanic Studies

Nieves-Jimenez: Will present the political and economic justifications behind the Chilean Coup of 1973.

Palmquist: When people think about Colombia, two images come to mind: Pablo Escobar’s drugs and Juan Valdez’ coffee. This project finds that the image portrayed by Juan Valdez does not accurately depict the lives of small coffee farmers of Colombia. The collapse of the International Coffee Agreement in 1989 triggered a decade-long coffee crisis, sinking prices to historic lows and forcing small farmers off their land. During this time, record increases in violence, homicides, illegal drug production, and forced displacement occurred and destroyed the lives of many farmers. Despite recent improvements in agrarian society, serious wealth inequalities and forced displacement issues must be resolved.

Thompson: In Guatemala, several distinct medical care systems simultaneously attempt to address the health care needs of its people. Individuals may choose between the nation’s public health care sector, an established network of international aid organizations, and traditional medicine associated with the nation’s prominent Mayan indigenous population. Through literature review and two weeks of field research in Guatemala, this study seeks to identify what factors influence how a Mayan individual navigates these three systems in order to make a health care decision. Conclusions from past studies have indicated that individuals often practice traditional medicine until the condition reaches a certain degree of severity, at which point he or she will turn to the next most readily available option. This study’s field work supports such findings and also identifies correlations and non-correlations between the demographics of individuals and their health care choices.

History

Chirpich: The military and media have often been at odds with each other as they have drastically different goals. Where the media is concerned with uncovering the truth and revealing it to the public, the military’s goal is to succeed in its military objectives, often through the use of military secrecy. This presentation will examine the military’s regulation of the media in the Persian Gulf War as a test of the media policy drawn up by the Sidle Commission in August of 1984 and also what media policy resulted from that media and military interaction of the Persian Gulf War. It

will do so by examining the government documents laying out the media guidelines and rules and the responses to these guidelines.

Daly: In 1845-1849, many women left the comfort of their homes to go with their husbands to the California gold field where they hoped to strike it rich. Many of these women did not realize what an impact they would make, not just on their families, but also on history. Without their documented experiences, historians would have little to no idea what domestic life was like for a pioneer woman living in California during the Gold Rush. So, how did women of the California Gold Rush, of 1845 to 1855, view themselves in their memoirs, which were written 30-35 years later? Based on the historiography, it is clear that these pioneer women saw themselves as optimistic, hard-working and positive, even perhaps the heroine of their own stories. It is also evident that these women understood the significance of their experiences. When these women wrote down their narrative in the 1880's the idea of the "new woman" was beginning to take form. With that new sense of independence these women wrote down their narratives believing that they were a part of history.

Heagel: The Eastern Front in World War II was one of the bloodiest and barbaric campaigns in the history of modern war. Millions of Russian soldiers, civilians, and children died from a conflict that had become a war of ideology. I will be examining the common German soldier on the Eastern Front in World War II and what motivated him to carry out the atrocities and murders that went on in their attempt to conquer the Soviet Union. From my research on many soldiers' letters, diaries, and a memoir, I argue that the German soldiers who fought on the Eastern Front carried out brutal murders and atrocities against the Russians because they were persuaded by successful Nazi propaganda, Wehrmacht training, and the horrific fighting conditions in the East.

Laine: From 1937-1950, Chinese women took on new positions in society in response to the Communist Party's agenda and to escape from the traditional gendered restrictions in society. By analyzing memoirs of women written in the early 1900's and their involvement in the CCP, I came to the conclusion that women were critical to the CCP's success and their involvement has helped them escape from traditional oppression.

Lahti: In 1930 six Benedictine sisters from St. Joseph, Minn., embarked on a mission to China serve the distressed Chinese people. In this project I will use the extensive Benedictine archival material including letters and other documentation in order to understand what the underlying motivations for their mission were and how the Japanese occupation of China altered these goals. Through this research it became clear the Benedictines wanted to practice the social gospel, baptize Chinese natives, and undergo a form of Catholic asceticism in their mission and that the Japanese occupation had ambivalent effects on these three goals.

Lee: World War II had devastating effects throughout Asia and claimed many victims. Korean comfort women had a terrifying experience as sexual slaves for the

occupying Japanese soldiers. When one of South Korean comfort women spoke up about her horrible experience in 1991, it triggered the comfort women movement in Korea but also other parts of world. By reading primary and secondary scholarly articles, books, and testimonies, and examining the Korean political system I will examine how comfort women remembered their experience and what they want to convey to the public by telling stories which they had kept secret for 50 years.

Liedl: In 1868 Japan was transformed from a feudal kingdom ruled by armour-clad warriors into a modern country ruled by an aristocratic bureaucracy. In October of 1944 the Imperial Japanese Navy began the organization of kamikaze units, whose missions were to sacrifice themselves in a series of all-out attacks against enemy targets. The effectiveness of the kamikaze forces has long been critiqued by historians and while the consensus is that the kamikaze attacks were ineffective from a military-achievement point of view, little is said about the effect that their sacrifice had on the fighting spirit of the general populace. My paper will look at the effectiveness of the kamikazes in terms of morale and the rekindling of the fighting spirit of bushido that many thought was lost after the Meiji Reformation of 1868.

Lurquin: Japan has struggled to come to terms with the significance of its defeat in World War II. This paper looks at the historical memory of that war as evidenced in Japanese manga, which are long plot comics, published in the 1960s and 1970s.

McHugh: In recent weeks the New Orleans Saints were penalized for offering bounties to injure the other team's players. This has been going on since the turn of the 20th century when football was full of unsportsmanlike coaching which led to injury and death. During the 1905 season, there were meetings influenced by President Roosevelt to change the governing body of football, create the NCAA, and outlaw the most dangerous plays. How influential was President Roosevelt in the rule changing process? What role did the media play in this as well? I will be using newspapers and correspondence as my primary sources for this study.

Meuwissen: With the world economy slumping after World War 1, tensions in the coal mining industry approached a breaking point during the early 1920s. Relations between the miners, the mine owners and the government moderators ultimately collapsed in 1926, resulting in a general strike. Using the personal papers of John Campbell Davidson, the man responsible for government propaganda during the General Strike, headlines from *The British Gazette*, and correspondence from *The Times*, this project addresses how the government's use of propaganda played on the innate British fear of a class war and ended the 1926 General Strike.

Petzelka: Students for a Democratic Society (SDS) was one of the most important student organizations in the 1960s and is principally remembered as a violent revolutionary movement opposed to the Vietnam War. However, when the organization was founded in the early 1960s, it was committed to reform through the existing political system, not overthrow of the system itself. My research on this early period from 1960 to the summer of 1962 suggests that when the vision and methods of SDS are viewed through what the leaders of the organization said to the

public and each other, the belief that the “seeds of revolution” were present in this period is not supported by the evidence.

Plunkett: When Mikhail Gorbachev became General Secretary of the Soviet Union in 1985, he outlined the task of restructuring the stagnant economy within the socialist framework. In this thesis I will examine how, in 1987, Gorbachev's supplemental policies diverted from the socialist ideology and moved towards full-fledged democracy within the USSR, which ultimately led to its collapse. In order to understand how social and political pressures led to the disintegration of the socialist foundation, I will examine the plans and hopes of party leadership and the reaction of the everyday Soviet citizens found in a local newspaper in order to see how Gorbachev's 1987 policies led to the destruction of the existing socialist system and towards genuine democracy.

Sun: About 170 years ago, China faced a turning point of its history when it lost the Opium War. In response to that loss, Chinese civil service leaders created a "Self-Strengthening" strategy. My presentation will examine how government officials blended Chinese and Western culture and technology as part of this strategy. But, ultimately “Self-Strengthening” failed by 1895 and my paper will explain how and why it failed. I will be using the letters written in the 19th century, the official documents, diaries, letters, newspaper articles, and the pictures taken during that time to support my thesis.

Whitcomb: Over 60 years ago, India was granted independence from British rule. Prior to independence, India's diverse communities sought to gain political influence, particularly the diverse Indian Muslim community. In this project, I analyze how the All-India Muslim League helped to define an Indian Muslim identity through an examination of their leader — Muhammad Ali Jinnah. My research will utilize political speeches, letters, and other writings from the 1930s and 1940s. All of the primary sources address various audiences concerning the partition of India. In the conclusion, the research will show how Indian Muslims became united under Jinnah's leadership and grew to form a solidified Indian Muslim identity.

Wattenhofer: The tide of World War II had turned against Germany following the Soviet victory at Stalingrad, and with each passing day, the Allies looked to the future composition of Europe. Poland emerged as a critical source of tension between the Soviet Union and the United States. I am looking at Roosevelt's handling of the Polish question, particularly how it affected Soviet-American relations over the topic of Polish influence. Some historians say that Poland was bound to fall to the might of Stalin while others say that Roosevelt fumbled the chance for a democratic Poland away. Both have their merits, but ultimately I believe that Roosevelt's handling of the Polish situation is an example of being too little too late, and Poland paid the price.

Modern & Classical Languages

Baden: My project seeks to explain the French term "laïcité" and to show how it is different from secularism in the United States.

Brookman: The French education system, like most education systems in the developed world, seeks to arm its citizens with knowledge and create responsible citizens. The French system does, however, have its differences, which stem from the three principles that govern it, "Liberty, Equality and Fraternity." My project will deal with how Equality being one of the prized principles affects the education system in France and will also look into equality in higher education, i.e. "les écoles supérieurs." The project will give the reader and audience a sense of the historical events that produced the system that it is found today, and will also make a number of comparisons to our own American education system as a means to help the audience better understand and be aware of the evident differences between the two systems.

Buske, Baggenstoss: Showing the basic history of women in china and the discrimination that they faced by society/men/culture in the past. Then also discussing the effects seen today — how women are treated now in general as well as discussing the one child policy and the gender roles/discrimination related to that.

Campbell: When composers set a poem to music, music and poetry interact in a complex partnership to create meaning. Music may serve to embellish the text, to emphasize certain images or emotions, and ultimately to reflect the composer's interpretation of the poem. The text enhances the emotions expressed in the music and allows for an interaction between the vocal line and the accompaniment. However, this close interaction between music and poetry remains an unresolvable relationship as the poem's translation into music transforms the text into something completely new. This paper explores how Paul Verlaine's poem "Clair de Lune" is transformed by the strikingly different musical interpretations of Gabriel Fauré and Claude Debussy. It is all still Verlaine's "Clair de Lune," yet each remains an independent work of art.

Chambers: The Romantic Period in German history was one filled with an outpouring of new ideas, visual art, poetry, and music that are still remembered and enjoyed today. A perfect example of the integration of two of these concepts can be found in Wilhelm Müller's poetry cycle entitled "Die Schöne Müllerin," set to music by composer Franz Schubert. Exploring these works separately and together, this study will present the history of the lives of these two artists respectively, the cultural elements found in the poetry, and the key elements of the integration of the poetry by Schubert into one of history's finest and earliest song cycles.

Gonzalez: Chinese culture varies from each geographical region, and many treasures lay within each of the five autonomous regions. In an oral presentation I will explain the beauty of China and how its resources are those that can only be found in such a vast amount of land.

Her: Smooth and sharp filled with her own unique style, Nakasone Rino is a well-known dancer and choreographer from Okinawa, Japan, who came to the U.S. to reach for her dream as a dancer. She grew up watching and dancing to Michael Jackson who became her greatest inspiration. In the U.S. Rino's talent became recognized as she taught classes and collaborated with many different artists such as Chris Brown, Rihanna, and Janet Jackson and groups such as the Beat Freaks, who got selected to be in a competitive television dance show called America's Best Dance Crew. Not only is she well-known in the U.S., she is also known in Korea for her work in choreographing for a popular entertainment company called SM Entertainment. Rino is currently teaching her own classes while keeping up with her busy schedule. With her passion, she has become an inspiration to many dancers around the world (in Japanese).

Her: Umematsu Nobuo is a respected video game composer who was born in Kochi City, Japan, on December 21, 1959. He is best known for composing music scores for the Final Fantasy series. When he was young he wanted to be a great pianist like Elton John, who was his influence as a child. Through his love for music, he decided to seek a career as a composer and the rest is history (in Japanese).

Lee, Vang: The first woman ruler who gained full political power of China during the Tang Dynasty from 649-705 BC, Wu Zetian entered the Imperial Palace as a concubine to Emperor Tai Zhong, Wu Zetian rose to power because of her breath taking beauty which captured the attention of not only the current Emperor, but also the future crown prince, Gao Zhong. Wu Zetian served as a consort to Tai Zhong, but was sent to the nunnery after failure of being his favorite concubine. She was summoned back to the Imperial Palace under Emperor Gao Zhong. She was able to gain and influence political power greatly because of her previous knowledge while she served as a consort. During this period, Gao Zhong grew weak, opening the opportunity for Wu Zetian to govern from behind the curtain. It was rumored that she killed her own daughter to gain the Emperor's sympathy and blamed the Empress for the accident. As a result of this, the Emperor denounced his wife of her title and gave Wu the title as Empress. From her reign as Empress, she was able to yield power, control the Imperial Palace as her own, create her own dynasty, and dethrone anyone that came in her way; the start of her ruthless aggressive supremacy.

Liang, Wang: Our group is selecting six Chinese women along the history and talk about the similarities and differences.

Lynch: Since the establishment of the EU, the globalization of Europe has continued with unprecedented furor. Borders fell between cultures, currencies, and controls — with the establishment of the Schengenraum under the Schengen Agreement European member states eliminated most forms of border control, opting for a singular control system along the external border of the Schengenraum. Historically, the German political rhetoric surrounding Schengen has been highly favorable, however, lately the Schengen area has become more politically questioned as more nations are added, and border security is diminished by a rising threat of

terrorism and organized crime. After consideration of organizational studies of criminal organizations and academic works like Peter Andreas' article from *International Security*, "Redrawing the Line Borders and Security in the Twenty-first Century," it becomes apparent that Germany need not fear Schengen as long as a few simple steps are taken to enhance their security forces and protect the luxury of unhindered international travel. In my thesis I explore the Schengenraum policies in detail, and prescribe greater communication between institutions like Frontex, Interpol, and local police forces to alleviate the potential security gaps posed by Schengen.

Maertz: Art is something that has been extremely important in my life, not only in the way that I confront different forms of art that have made an impact on society, but also in the creation of my own art. Through this I have found an outlet for expressing what cannot be done with words. As I was exploring this idea in the secondary sources written about Hermann Hesse's novel, *Demian*, I noticed that none of the critics wrote specifically about the function of artistic imagery in *Demian*. I found this rather perplexing since so much has been written about the novel and also because art and creativity are so vital to the protagonist in the novel. In addition, there are so many multiple references to art works and the creative impulses of the protagonist that upon closer examination contain a deeper meaning, which cannot be realized at the surface level of the story.

My paper will examine the function of art; not only in the novel, but it will also shed insight into the craft and context of artistic creativity. It will be the aim of this paper to prove that the artistic creations of the protagonist, Emil Sinclair, are a means towards individuation, showing how every successive art work leads to greater insight and at the same time forms a unified vision leading to the realization of the protagonist's own vocation.

Marzik: For my thesis, I plan to show the evolution of music as an independent source of highly developed philosophical ideas. For many baroque composers in Germany, music served as a supplement to the church. While the "art" music that has developed in later periods is usually performed for intellectual audiences, I plan to argue that going to see a band play today is a more powerful experience that can force you to think critically and question life. Rather than passively sitting in a concert hall and listening, fans at a show are actively involved with the music and part of the art form. There is no barrier between performer and listener. I will refer to such bands as "Hundredth," "Misery Signals" and "Stick to Your Guns" in proving that the music of our generation holds greater meaning and much higher intellectual ideals than critics may dismiss it to have. The setting for questioning and debating philosophical ideas does not have to be confined to an academic setting; it is currently flourishing in today's rich music scene.

Mesfin: I present my time abroad in Japan, and its diverse cultures that I learned and discovered there. In particular I discuss the differences between mainland Japan and Okinawa, as well as other important cultural aspects that I encountered during my studies at Bunkyo Gakuin University (in Japanese).

Pignato: At the center of German literature is Johann von Goethe. If one wants to study any sort of German literature, works by Goethe would provide an excellent introduction. His skill with words and diction, metre and structure, outperform contemporary writers and any writer since then. In my paper I will be analyzing the styles Sturm und Drang, Empfindsamkeit, and Klassizismus, to show the variety of styles Goethe created in his time. Poems will be used as examples to better illustrate the characteristics of the different epochs. To conclude my paper, I will be using works late in Goethe's career to demonstrate his ability to unite the different characteristics of the three epochs. He used the styles of his earlier works superbly in his later endeavors, showing his command of styles.

Tomten: Fair Trade is an economic model that is just taking root in the global market. There have been numerous previous studies about the efficacy of fair trade in comparison to free trade. Artisanal work has the unique ability to maintain a cultural identity, while operating within a global economic market. This project has two components: the first evaluates fair trade as a viable economic process in which developing countries can participate. The second part looks at the case of the rural village of Ndem in Senegal, which is the site of a fair trade operation dedicated to employing artisans. Here the social and economic benefits of fair trade are given a face in the form of personal accounts of life in the village. The study presents the difficulties of working within the constraints of an ever-changing global market, as well as the social and economic benefits for a small village struggling to survive.

Traxler: The post-war period saw many economic, political, and social changes in Japan — one of which was the expansion of women's roles in society and presence outside the home. During the 1970s in particular, the Japanese feminist movement critiqued traditional ideals of women's sexuality, motherhood, and femininity in a parallel to the women's liberation movement occurring in the Western world at the time. This presentation looks at various factors in Japan that allowed for the emergence and growth of the Japanese women's liberation movement, as well as some of the issues it faced and successes it achieved (in Japanese).

Yamoah: The French adopted secularism as a way of preventing the domination of one religious entity, as it was during the Ancien Regime. Known for having liberty, equality and fraternity as their motto, the French have been determined to make sure that all of their citizens can live a life exemplary of the nation's ideals. However, secularism seems to be having an adverse effect in France today. Instead of bringing together the people of France, it seems to be dividing them. Many people see the concept of secularism as a way of alienating the Muslim community in France, of excluding them unless they adopt the characteristics of the stereotypical French person. Others say that secularism applies to all and not just the Muslim community. Is Secularism really what France needs for further growth or will it be the nation's undoing?

Yang: Kurosawa Akira was an acclaimed Japanese film director and producer. He made many classic films that were also popular in the West. My presentation introduces his life, his interest in film studies and his famous movies. My favorite is

“Ran,” so I will present more details about the film production and story (in Japanese).

Yang, Wang: There are a lot of differences between Chinese and western marriages. What we are going to talk about is the history of Chinese weddings and how they develop. The presentation aims to give people a clear comprehension of a Chinese-style wedding.

Zeng, Chun: A lot of differences about women in past and now.

Natural Sciences Presentations:

Biology

Bailey, Burns, Stiller: Within the human immune system, there exists a variety of cells that work together to defend against harmful pathogens and other potential threats. Among these immune cells are crucial populations of lymphocytes including different varieties of T cells, which play a role in cell-mediated immunity through orchestrating the immune response. The recently discovered regulatory T cell, a specialty lymphocyte, has been shown to inhibit immune responses, a key to preventing over stimulation of that response and subsequent destruction of self-cells. Such self-attack often results in autoimmune diseases. In addition to control and treatment of autoimmune diseases, these regulatory T cells have implications in the treatment of allergies, and the prevention of transplant rejection. Currently, we have little understanding of how these regulatory T cells are activated.

The purpose of this investigation was to study CD4+CD25+Foxp3+ regulatory T cells to determine what chemical signals will affect their population in human blood. Human peripheral blood leukocytes (PBLs) were obtained via separation through a ficoll extraction. To set a baseline for activation, a generic mitogen, PMA and ionomycin, was used to stimulate the PBLs. After stimulation of the different immune cells, flow cytometry was used to identify CD4, CD25, and Foxp3 regulatory T cells in the population of PBLs. To do so, markers for CD4, CD25, and Foxp3 were fluorescently tagged. The number of CD4+CD25+Foxp3+ regulatory T cells was then counted using a flow cytometer. The number of regulatory T cells found in the test group was then compared to the number of regulatory T cells found in a control group to which no stimulus was added. Our goal in this study was to establish a protocol for extraction and measurement of regulatory T cell numbers from human PBLs. Then this process can then be repeated with the addition of several potential regulatory T cell effectors to see which will impact their activity within the immune response. This may include natural anti-inflammatory agents or immunosuppressants. In particular, this study plans to continue its focus on the effects of natural supplements on the regulatory response of the immune system.

Burg: This presentation will be about the effects of habitat loss and fragmentation on boreal bird species abundance and reproductive output. I will focus on how habitat loss and fragmentation as a result of timber harvest have affected bird species abundance and reproductive output in landscapes with various degrees of habitat fragmentation. My study will also discuss some management strategies to help minimize these effects on resident birds and long distant migrants, two groups most affected by habitat loss and fragmentation of their breeding grounds.

Conery, Sidla: We plan to show the phenomenon known as circumnutation in radishes, sunflowers and cucumbers. We will germinate the seeds and film them for the next few days. We will create a time-lapse video of the effect. The video will be shown and the phenomenon will be described.

Flynn, Dukowitz: The process of etiolation helps flowering plants conserve resources in the absence of light. When plants are grown without light they focus their resources into hypocotyl growth, producing long fragile nodes in order to reach the light. Once they reach their light source plants undergo a process called de-etiolation, and reduce the hypocotyl growth rate and focus energy on photosynthesis. During de-etiolation there are a number of other changes that occur also. The purpose of this project is to document the changes that occur in cucumber and corn plants as they undergo de-etiolation.

Goeden: Chemicals were added to the food of *Drosophila melanogaster* larvae to determine if the chemicals would alter the generation of crawling by the neuromuscular pathway. The chemicals included caffeine, histamine, acetylcholine, dopamine, and alcohol. The larvae were videotaped before and after the addition of the chemical laced food. Differences in movement patterns between the before and after videos were used to determine if the chemicals caused an effect. The number of times each larva stopped, turned, and the amount of time spent stopped were statistically analyzed to determine differences possibly caused by the chemicals. Caffeine and acetylcholine were the only two chemicals that had an effect on movement patterns. (This presentation is for the Natural Science Capstone.)

Kaufman, Dick, Sanusi: The purpose of our experiment was to investigate the effects of different wavelengths of light on plant growth. We wanted to test if the different wavelengths of light had an effect on the phototropic response of *Avena sativa*. We hypothesize that oat plants would grow toward blue light and not the other two colors.

Four different oat seeds were planted and grown for six days. Each plant was grown under white light for the first five days. On the sixth day, the different plants were subjected to different sources of light for three to four hours. The light source includes white light as control treatment, and blue and green light as experimental. The plants were placed upright in a box and the light source was introduced through a hole in the side of the box. The plant growth was then monitored for three to four hours.

Our data suggests that our hypothesis was supported. The plant responded to both white and blue light but not so much with red light. This suggests that light does affect photosynthesis and some better than others.

McCabe, Denning: The purpose of this experiment was to capture the growth/development of a plant's root system on film. Our goal is to provide an informative presentation, in which we will discuss various mechanisms of growth in a plant both above and below ground. We will also have a small slide show with images of various anatomical features of a developing plant (i.e. apical meristem and root cap).

Penas, Yanik: Our purpose in this project was to document the effects of gravitropism in plants. Gravitropism is plants' growth response to gravity; namely, their stems bend to grow upward and their roots bend to grow downward. To do

this, radish seedlings were monitored with time-lapse photography for about two hours. This presentation will demonstrate this growth response, which occurs because of elongation in the cells on the lower part of the stem.

Simonson: This project will show how well-conserved the eukaryote cytochrome oxidase subunit II is between the Vero Cell mtDNA and the sequence found in the African Green monkey's mtDNA. Conservation, or no significant changes, between these two sequences would suggest that the protein is an important part of the cells ability to survive. Because the Vero Cell contributes to many areas of research, its ability to maintain conserved, well-evolved genomes is essential to the continuing advancement of health sciences.

Puhalla: Each summer, the Antarctic population of Humpback whales migrates to the Ecuadorian coastal waters. This migration pattern is the impetus for an increasingly popular ecotourism business; specifically, whale watching. Three factors raise concerns about potential negative impacts. These include: the fast growth of this industry, a lack of regulatory protocols, and whale-watching activities occurring within the breeding/reproductive area. Other studies report negative effects on humpback whale behavior due to repeated approaches by whale watching boats.

The purpose of this study was to collect preliminary data on whale behavior while animals were associated with boat-approaches. Our study area was the coastal waters within 40 km of Puerto Lopez. During July 2011, we recorded whale behavior relative to the boat. Upon sighting of pods, the following data were collected: distance, gender, pod numbers, movement behavior and location. Distance from the boat ranged from 0 meters to 200+ meters (= 51.18 m); we used only animals within 200 meters of the boat. In six days, we observed eight individual whale pods (with 11 pods total; = 4.6 whales/day). Pods consisted of males or males following a single female. Movement data was categorized as toward, away, or parallel to the boat. Whales moved away from the boat 49.3 percent of the time (n = 69). This behavior suggests that whales are changing direction in response to boat approach/presence. We plan to expand this study in 2012 to obtain a more robust data set and to continue to provide a valuable undergraduate research experience for students.

Chemistry

Fraser: The effect of ionic liquids 1-butyl-3-methylimidazolium tetrafluoroborate, 1-butyl-3-methylimidazolium hydrogen sulfate, and 1-(2-hydroxyethyl)-3-methylimidazolium tetrafluoroborate were studied in the synthesis of silver iodide nanoparticles. Synthesis was performed in Triton X-100 reverse micelles under ambient conditions. Ionic liquids were introduced into the system to determine how they, as solvents, can contribute to forming nanoparticles of uniform size and size distribution. The nanoparticle rate of formation was evaluated by ultraviolet-visible absorption spectroscopy, and the sizes were observed using transmission electron

microscopy. The rate of formation was affected by the type of ionic liquid, which is suspected to be a result of the ionic liquid viscosities affecting intermolecular exchange, as well as results of solubility effects on precursor materials in the presence of ionic liquids.

Rolle: Epoxide rings, also known as Oxirane rings, are formed between two carbons and an oxygen atom. These highly strained rings owe their chemical importance to the ease with which they can be opened. The goal of this project was to synthesize two different dimethylphosphonate epoxides through various epoxidation methods. These phosphonate epoxides, synthesized from, propenal and cinnamaldehyde, could be used as starting materials in the synthesis of 1,2 – Amino Alcohols. These nitrogen containing alcohols are chemically important because they could possibly be used in anti-giardia lamblia treatments. Giardia lamblia, scientifically known as Giardia intestinalis, is a parasite which causes the diarrheal illness called Giardiasis in up to one third of some countries' populations, including South Africa. The products created during this project were characterized via $^1\text{H-NMR}$, $^{13}\text{C-NMR}$ and $^{31}\text{P-NMR}$.

Mathematics

Nicklawsky: An important piece of information when dealing with a polynomial is its roots, the value or values of x for a given function f such that $f(x) = 0$. Iterative root finding methods, such as Newton's method, are utilized to discover an approximate value when these values cannot be explicitly solved. This iterative process can be graphically represented for complex-valued functions and has been achieved with relative ease on a 2-Dimensional plane. The resulting image visualizes basins of attraction and the fractals that result. This picturing is useful but limited by the constraints of the size of the plane. However, this process could also be embodied on a sphere through the method of stereographic projection. By projecting the entire complex plane onto a sphere, one can visualize completely the dynamics, discovering the extent and location of basins of attraction. Envisaging these basin maps is an important tool in understanding the dynamics of chaotic dynamical systems of the complex plane.

To further investigate the images of these basin maps I coded several programs. In this research, I utilized using Newton and Halley's iterative root-finding method on the complex plane. Upon mapping out their iterations on the complex plane, I wrote a program utilizing Matlab to stereographically project them upon a sphere. I also created a program for the general form as derived by Eldon Hansen and Merrell Patrick, which captures an iterative family of functions. Through my work I created a way to examine the entire chaotic picture and discover the influences of adjustment in parameters.

Sibley: Students will present their geometry projects. Topics will vary from symmetry in culture to polyhedra and beyond.

Wang: Redistricting is the process of dividing states into congressional districts of equal population according to the decennial census. How the boundaries of districts are drawn will largely affect how many districts can be won by a party. The

Constitution gives state legislatures the discretion to draw those boundaries. Thus a party in control of the legislature will likely bring about a voting outcome favorable to them by manipulating those boundaries. However, the U.S. Constitution does not say anything explicitly about how the represented district should be determined geographically. The purpose of this paper is to bring about a fairer redistricting plan by quantifying the fair division by using computer science and mathematics methods. Instead of visually estimating the compactness of a congressional district, this paper uses a novel solution regarding to its inscribed circle and circumscribed circle to more correctly estimate its compactness. In addition, this paper set up the compactness threshold for a qualified congressional district in a state by calculating the average compactness among all possible districts in the state. Finally this paper introduces a novel protocol in creating a fair electoral map.

NATS

Burg: This presentation will be about the effects of habitat loss and fragmentation on boreal bird species abundance and reproductive output. I will focus on how habitat loss and fragmentation as a result of timber harvest have affected bird species abundance and reproductive output in landscapes with various degrees of habitat fragmentation. My study will also discuss some management strategies to help minimize these effects on resident birds and long distant migrants, two groups most affected by habitat loss and fragmentation of their breeding grounds.

Covington: With 90-95 percent of all cancer cases developing as a result of environmental conditions and lifestyle choices, cancer is a highly preventable disease. With the help of epigenetics we are beginning to develop new prevention methods for many types of cancer. My presentation will give a brief overview of colorectal cancer including the pathophysiology of the disease, the risk factors, and the current treatment options available. I will then go into detail on the study of epigenetics and the specific epigenetic modifications involved with colorectal cancer. Finally, I will discuss the role that folate plays in the prevention of colorectal cancer through the comparison of a number of differing studies.

Fulton: Cartilage tissue engineering is a cutting-edge method of treatment developing to treat both traumatic injuries and degenerative diseases affecting the biomechanical function of joints through cartilage damage. Osteoarthritis is one such degenerative disease affecting the lives of millions of Americans and others around the world. Cartilage tissue engineering is in the midst of developing new treatment strategies for victims of osteoarthritis. This presentation will introduce both cartilage tissue engineering and osteoarthritis, eventually leading to how scientists believe cartilage tissue engineering can treat osteoarthritis and what obstacles need to be overcome in order to make it reality.

Goeden: Chemicals were added to the food of *Drosophila melanogaster* larvae to determine if the chemicals would alter the generation of crawling by the neuromuscular pathway. The chemicals included caffeine, histamine, acetylcholine, dopamine, and alcohol. The larvae were videotaped before and after the addition of

the chemical laced food. Differences in movement patterns between the before and after videos were used to determine if the chemical caused an effect. The number of times each larva stopped, turned, and the amount of time spent stopped were statistically analyzed to determine differences possibly caused by the chemicals. Caffeine and acetylcholine were the only two chemicals that had an effect on movement patterns. (This presentation is for the Natural Science Capstone.)

Immler: Runoff from the agriculturally rich Midwest area of the Mississippi Drainage Basin is seen as one of the main contributors to the dead zone at the mouth of the River (in the Gulf of Mexico) doubling in size the last 25 years (McPhee, 2010). The infiltration of chemicals nitrogen and phosphorus is believed to be taking place quite heavily in the Minnesota River Basin (Allan, 2004). This presentation will cover the main causes behind these elevated rates of erosion and why it is important that this is addressed in agricultural areas. The intent of this thesis is to measure the effectiveness of a mitigation technique that involves strategically placing native perennial vegetation in strategic locations to reduce the rate that nutrients and sediments move through the watershed. The means of evaluating the success of the technique will involve looking at total suspended solids along different lengths of the Minnesota River and its tributaries using resources like the Environmental Data Access database (through the MPCA), as well as examine research nutrient infiltration conducted by various institutions like Minnesota State University, Mankato. With this investigation, I hope to convince the audience that the scope of this practice should be expanded by Soil and Watershed Conservation Districts throughout the Minnesota River Basin.

McCabe: In my presentation I will be exploring some of the differing levels in the human body as they are affected by the venoms of some of the world's deadliest animals. I will be working specifically with data and research concerning the venoms of jellyfish and snakes as they are some of the most well understood venomous animals in the world. I will first look into the biochemical effects these toxins have on the cell. I will then expand the view of these and look at them on a whole body anatomical level to see exactly where they do the most damage. Finally, I will look into some of the medicines that humans have discovered to combat these deadly animal's stings and bites.

Schaefer: There is becoming more and more mounting evidence that many forms of Meditation can cause a variety of mental health benefits. An interesting field in neurology tries to study the impacts of different forms of meditation on the mind using a variety of tools and techniques. In my presentation I will talk about the ongoing research today being done with practicing "Mindfulness Meditation," an increasingly popular form practiced by millions of people, and its impact on cognitive function in individuals that practice it. It is hypothesized that cognitive function actually improves in individuals that practice this type of meditation with mounting research that shows evidence of physical changes that take place in the brain. I will also discuss new areas of study that could be done in the future using tools such as Functional Magnetic Resonance Imaging and Electroencephalography (EEG) which can be utilized in this area of study.

Physics

Anderson: The project concerns the design and construction of a robotic xylophone. Focusing on the application of algorithms and external circuits to microcontroller design, the robotic xylophone uses the fourier transform of an audio signal to repeat sounds played to it by an acoustic guitar. The fourier transform allows the playback of both a series of individual melody notes and a series of three-note chords. A program was also made to allow the xylophone to extract and play individual instrument parts from MIDI files.

DeSutter: New applications are continually appearing involving light interactions with different substances. There have been a number of experiments done in the past involving light interactions with spheres of different materials. It has been found that varying the index of refraction of these spheres by either changing the wavelength of light or temperature of the sphere will cause a change in the forward scattering and backscattering of light. In this experiment I wanted to see if changing the intensity of the light hitting a sphere would also have an effect on the index of refraction and thus have an effect on the forward scattering and backscattering of the light. In order to accomplish this I used both pulsing and non-pulsing laser light of approximately 800 nm, and recorded how varying the intensity of this caused changes in the backscattering and forward scattering of the laser light in spheres of different materials. In order to vary the intensity I used a rotating wave-plate to allow only certain polarizations of light to pass. Since the light from the laser is horizontally polarized as the wave-plate rotates from the horizontal to vertical position the intensity of light decreases. So far there has not been any clear evidence of a varying intensity causing a varying index of refraction. However, there do appear to be significant differences between pulsing and non-pulsing laser light of the same average power.

Gao: Sunlight is the total frequency spectrum of electromagnetic radiation given off by the Sun. Sunlight impinging at the top of the earth's atmosphere is subject to absorption and scattering as it makes its way to the surface. There are two main kinds of absorption: water vapor absorption and oxygen absorption. In this project, I will introduce a method to calculate the amount of water vapor with a solar spectrometer.

Phillips: In atomic physics, lasers are used to study energy levels of atoms. This project involved the construction and calibration of two tunable diode lasers that had wavelengths of 780 nm and 633 nm. These are to be used for future atomic structure study. In addition to the lasers, it was necessary to construct and calibrate a wave meter so that the wavelength of the lasers could be measured. The measured wavelengths of the lasers were accurate to 1 part in 1,000,000 using the wave meter.

Schlichting: An extended cavity diode laser was constructed out of machined aluminum bases and aluminum housing components. Using a grating, the laser has a tunable frequency by changing the angle of the grating. The frequency also depends on temperature and current through the diode. It was found that the laser has a controllable wavelength range from 778-790 nanometers with a free range laser wavelength around 785 nanometers when the laser polarization is aligned perpendicular to the grating pattern. A much smaller range of about 783-785 nanometers with a free-range laser wavelength around 784 nanometers when the polarization was aligned parallel to the grating pattern.

Vievering: Through the primary mirrors of today's space observatories, the world has gained much knowledge about the universe we live in. However, looking towards a future of higher resolution imaging in space, these rigid optical elements have the drawback that they are restricted in size by the weight capacity and dimensions of the space craft's available. A type of diffractive optic called a photon sieve may provide an innovative alternative to these rigid optics. A photon sieve is a flat surface containing holes of various sizes to resemble the pattern of a Fresnel zone plate which focuses light of different wavelengths at different focal lengths. Since photon sieves are made on a two-dimensional plane rather than a curved surface, they can be produced on membranes that can be folded up for condensed storage within a smaller spacecraft element than is possible for rigid optics. Prior to sending this new technology up into space for solar imaging, verification of functionality on earth must take place first through a ground test of a photon sieve optical system, which is the project I worked on this past summer at NASA GSFC with mentors Adrian Daw and Doug Rabin as well as summer intern Laura Dunlap. The optical system we created uses a 56.16 mm diameter photon sieve on soda lime glass plate with 1500 Fresnel zones containing over 15 million holes. It is designed to take images of the sun that are limited to wavelength H-alpha. During the final week of our internship, we mounted the system onto a telescope and took the first images of the sun using a photon sieve. Having determined the functionality of the system, the resolution of the system as well as other versions of photon sieves will be investigated so that this technology can next be used in space where the benefits of the ability to use a large, lightweight primary optic can be fully utilized to study the sun's features at high resolution.

Social Sciences Presentations:

Economics

Dai: This research project is dedicated to researching the comparative advantage of the solar energy markets in the U.S. and China — it is seeking to answer the questions about who is leading innovation, manufacture, and investment in solar market across the border.

Downs: An examination of the digital secondary market for digital objects (cards) on “Magic: The Gathering Online,” examining the effects of demand and supply on objects. I look at the effects of recent tournament success of cards, recent speculation, redemption for paper cards, and changes in influxes of cards on-line.

Nowak: In this paper I seek to empirically determine the effect a country’s piracy rate has on the legitimate sale of music. Theoretically speaking, piracy may inhibit legitimate sales by creating a substitution effect away from licensed copies to copies downloaded over the internet. Positive effects to piracy may be present as well through network externalities, sharing, and advertising. The true effects of piracy therefore must be determined empirically. I will approach this question by regressing national music sales data on national piracy rates and other variables such as per capita income, population age, and the proportion of the economy employed in agriculture.

Vollinger: Cyclical fluctuations in the macroeconomy seem to recur with an intensifying severity and duration. While the prevailing doctrine explains economic crises by means of the influence of various exogenous “shocks” to the market, or alternatively by reference to the unstable “animal spirits” of the investors and consumers, we assert that the driving force behind economic fluctuations is fundamentally different, and quite consonant with the theorems of general equilibrium theory. Systemic malinvestment, it is contended, takes place as a result of the false information provided to market agents through deliberate manipulation of the interest rate by a monetary authority or central bank. Monetary and bank credit expansion, which has the effect of lowering the gross market rate of interest beneath the rate which would tend to equalize the demand for and supply of loanable funds (the natural rate), results in an unsustainable overinvestment in the higher stages of production relative to the lower stages, more proximate to final consumer demand. The inevitable correction comes in the form of a sharp rise in interest rates, followed by a liquidation of the malinvestment occasioned and sustained by artificially-low interest rates.

Entrepreneurship

Tomten, Pham: Extending the LINK (ETL), CSB/SJU’s student-run non-profit documentary team, has an impressive repertoire of documentary films that explore a variety of global social issues, such as Fair Trade, micro-lending, child-headed

households, and human trafficking. In the four years since its inception, ETL continues to uphold its mission of creating films that both raise awareness and inspire action in viewers. ETL's latest film focuses its efforts on how Bosnia and Herzegovina (BiH) are rebuilding as a nation and as a people. During the conflict of the 1990s, BiH experienced ethnically motivated atrocities labeled as the worst genocide in Europe's history since the Holocaust. The film, entitled "Obnova," explores the history of the conflict through the lens of the young Bosnian generation, and reveals the efforts made by the youth to promote peace and tolerance in the country. Further interested in the power of the youth to instill change in BiH, Extending the LINK hopes to shed light on how the next generation is working for peace and striving to create a community of interethnic understanding and tolerance.

Global Business Leadership

Barreiro: Eric Rego Entrepreneurship Pitch Competition finalists announced.

Tomten, Pham: Extending the LINK (ETL), CSB/SJU's student-run, non-profit documentary team, has an impressive repertoire of documentary films that explore a variety of global social issues, such as Fair Trade, micro-lending, child-headed households, and human trafficking. In the four years since its inception, ETL continues to uphold its mission of creating films that both raise awareness and inspire action in viewers. ETL's latest film focuses its efforts on how Bosnia and Herzegovina (BiH) are rebuilding as a nation and as a people. During the conflict of the 1990s, BiH experienced ethnically motivated atrocities labeled as the worst genocide in Europe's history since the Holocaust. The film, entitled Obnova, explores the history of the conflict through the lens of the young Bosnian generation, and reveals the efforts made by the youth to promote peace and tolerance in the country. Further interested in the power of the youth to instill change in BiH, Extending the LINK hopes to shed light on how the next generation is working for peace and striving to create a community of interethnic understanding and tolerance.

Schiffler, Miller, Burns, Haik, Kennedy: The S.A.M. team completed an experiential learning program through the management department that involves case study research presented in a competitive, academic format. This year the CSB/SJU S.A.M. team won first-place at the Society for the Advancement of Management Case Study Competition and will share the lessons learned from this experience. The multi-disciplinary team of Gavin Miller (management), Caroline Haik (biology), John Burns (management), Cole Schiffler (economics), and Laurel Kennedy (management) conducted research on the company Tesla Motors and Electric Vehicle Industry. This research was used to develop strategic recommendations for Tesla Motors and was presented to a panel of judges at the Society for Advancement of Management Conference. The team will discuss how to conduct case research, how to strategically justify recommendations, and what they learned from the S.A.M. experiential learning program.

Scholz, Jenniges: The CSB/SJU SIFE team had an amazing year with many great accomplishments including winning the regional competition in Minneapolis. SIFE representatives will be giving a brief synopsis of our projects and the impact that they have had both locally and globally. We will discuss the leadership, structure, and operations of our team. The presentation will conclude with SIFE's vision for next year.

Smith, Reischl: The Mayo Innovation Scholars Program (MISP), sponsored by the Medtronic Foundation, Minnesota Private Colleges Council, and Mayo Clinic brings together science, business, and health-oriented disciplines to develop new ideas and recommendations geared towards projects and patents Mayo Clinic is currently working on. This project culminated in a written report and presentation of research findings and a future business plan. Our presentation will provide an overview of the process that undergraduate students undertook from October to March.

Schaetz: Many people today question whether global pharmaceutical companies operate with a universal set standard for crisis management or if cultural values influence their decisions regardless of external pressures. Because of technology, continental borders no longer obstruct intercultural communication. The result of increasing scientific advances leaves no organization impervious to both true problems and false rumors spread by the media. An issue can instantaneously erupt and leak into the public domain before a corporation can confer and manage the issue internally. Therefore, crisis management is essential for both large and small corporations to help them alleviate any potential image damage. Pharmaceutical companies are especially prone to crises because they operate in the healthcare sector. In consideration of this, it is vital for pharmaceutical organizations, no matter where they are located geographically, to prepare for such crisis events. The different methods international pharmaceutical firms used to manage crises are examined in the context of their headquarters' country of origin. The working hypotheses suggests that although a universal set of crisis management guidelines is developing, businesses still need to be sensitive to differing cultural values.

Political Science

Knox: This presentation focuses on the recent secession of South Sudan. Theoretical models will be utilized to illustrate why African borders have remained stable for so long. The role of international recognition in forming new states will also be highlighted. The history of Sudan's peace process is explored, as well as the international forces that helped to bring about the Comprehensive Peace Agreement of 2005. The factors leading to this unique case of African secession will be identified, as will the role that the international community played in establishing South Sudan as a recognized state.

Lowder: Mental Health Courts (MHCs) connect mentally ill offenders to community-based mental health treatment in an effort to reduce the endemic

recidivism that often characterizes this population. Previous studies attempting to evaluate the effectiveness of MHCs in reducing recidivism have focused on the evaluation of individual MHCs. These studies have yielded inconsistent results, suggesting that distinct factors may influence the effectiveness of a given program. More recent studies have focused on multi-site or meta-analytic evaluations of MHCs, some of which have identified distinct characteristics of both participants and MHC programs that predict decreased recidivism. This study expanded upon recent studies by examining whether graduation status or co-occurring substance use at program entry was associated with decreased recidivism. Data was requested from the Ramsey County Mental Health Court for both program participants (N = 58) and a matched comparison group of offenders (N = 40). Results demonstrated partial support of the Court's effectiveness in decreasing pre- and post-program recidivism for participants. Similar to previous research, graduates of the MHC experienced greater decreases in post-program recidivism. In contrast to previous research, results showed that participants with co-occurring substance use experienced greater decreases in post-program recidivism than participants without co-occurring substance use.

Welch: This project is my senior thesis and deals with supplementing the Minnesota Sustainable Building 2030 Legislation with government incentives in working toward the goal of decreased energy consumption/carbon emissions from Minnesota buildings.

Psychology

Anderson: The current study sought to understand the effects of two languages in a complex listening environment on selective attention. Adult second language learners of Spanish listened and attended to one spoken message while ignoring another from their other ear. The language of each message was manipulated to be either English or Spanish. Low proficiency Spanish speakers were found to have much more difficulty selectively attending to their second language than their first language. High proficiency Spanish speakers showed significantly less difficulty attending to their second language. This implies that with increasing proficiency in a second language, those L2 learners become better at ignoring their native language and attending to their second language, thus getting closer to matching the attentional skills of proficient bilinguals.

Edmiston: Natural mimicry has been shown to develop interpersonal rapport and general prosocial behavior even when copying is consciously initiated. The purpose of this experiment is to examine whether mimicking some individuals but not others alters implicit and explicit liking of the mimicked individual and more general liking of all individuals.

Ellis: This study examined how discrimination based on sexual orientation affects one's mental health. It focused on how discrimination based on sexual orientation differed for those who are a sexual minority (any sexual orientation identification

that is not heterosexual) as compared to those who are a sexual majority (anyone that identifies as heterosexual). The participants for this study, (N = 119) were separated into two groups. Group one participants identified as heterosexual (n = 73) and Group two participants identified as a sexual minority (n = 46). Sexual minority participants reported higher levels of discrimination and lower self-esteem than the sexual majority participants. Participants who identified as sexual minorities also reported lower levels of depression than sexual majority participants. There was no significant difference between the participants and attachment and social anxiety.

Gerten: Abstract

Working with sexual assault survivors can be a stressful and depleting activity to engage in. The purpose of this study is to assess the effect this line of work has on victim advocates, including both full-time staff and volunteers, who have a caseload consisting only of sexual assault survivors. Volunteers and full-time staff were recruited from a sexual assault client service provider located in the Midwest to complete questionnaires. The Trauma and Attachment Belief Scale and the PTSD Checklist were used to assess disruptions in world beliefs and PTSD symptomology. This study had three hypotheses: 1) there would be higher levels of vicarious trauma seen in the volunteers compared to full-time staff, 2) having a personal history of victimization and the duration a person has worked or volunteered at the center would predict levels of vicarious trauma, and 3) there would be an interaction between these two variables impacting the levels of vicarious trauma. There were no significant disruptions in world beliefs or PTSD symptomology regardless of the independent variables alone. There was, however, a significant interaction between having a history of victimization and time working or volunteering at the center. These findings suggest good measures are in place to train and screen staff working with sexual assault survivors. The pattern of results is consistent with recent literature concerning the possibility that post-traumatic growth could be occurring in individuals who have a personal trauma history and engage in prosocial behaviors.

Hultgren: Elderspeak, a common type of ageism, is a form of speech modification for older adults that features simple diction, inappropriate pluralism, and changes in pitch, tone, speed, sentence length, and volume. The current study compares the use of elder speak by undergraduate students who have regular contact with the elderly, in the form of service learning, to those who do not. Participants are asked to complete the Fraboni Scale of Ageism (FSA), an Implicit Associations Test (IAT), and a communication map task. In the communication map task, students verbally describe a route on a given map to both a middle-aged adult and also to a senior citizen. The researcher predicts that contact with the elderly through service learning will cause undergraduate students to use more elderspeak on a direction-giving task when compared to undergraduate students who do not participate in service learning with the elderly. These results will contribute to research on the effect of contact on stereotyping behavior and may also have important implications for colleges and universities that offer undergraduate students service-learning opportunities with the elderly.

Kaplan: Previous research has implied that the accuracy of facial recognition may depend on the amount of time and attention paid to a particular feature. Recent studies have suggested that there may be an observer sex difference in visual scanning of unfamiliar faces, implying women and men may be processing different information (Hall, Hutton, & Morgan, 2010). The implications for gender differences in encoding information may be that men and women have different capabilities for feature recognition. While it has been shown repeatedly that women are more accurate at facial recognition and recognition of emotion, it has not yet been discovered if there is an individual feature that makes their increased recall possible. A better understanding of the interaction between gender and facial feature recall will help to increase knowledge surrounding the cognitive processes associated with facial recognition. It may also provide an understanding of whether or not there are gender differences regarding which facial features make individuals memorable. The current study was conducted using 55 participants, 37 women and 18 men, who were asked to observe four faces, and then later distinguish features of those faces from a group of distractors. It was hypothesized that women will perform better at the recognition tasks compared with men; and that women will have more correct identifications of eyes and mouths, which may correlate with their higher ability in recognition of emotion.

Lenzen: Gender microaggressions are brief and common verbal, behavioral, and environmental indignities that can be intentional, but are oftentimes unintentional, that communicate hostility to women. Gender microaggressions differ from microaggressions against other groups in that women as the recipients of microaggressions often do not even realize that the encounter is discriminatory. In order to advance the knowledge about the unique nature of gender microaggressions, the current study sought to investigate the differences in outcomes and attitudes between those who recognize microaggressions and those who do not. There were 174 participants who came from a small, liberal arts university. An online survey format was used to gather data from the participants. The survey included six microaggression vignettes, demographic questions, and four previously established scales to measure body image, self-esteem, ambivalent sexism, and social desirability. Analysis revealed that women were found to recognize gender microaggressions more often than men. Also, results showed a positive correlation between self-esteem and recognition of gender microaggression and a negative correlation between this recognition and hostile and ambivalent sexism. Possible explanations and implications for these findings are discussed.

Molenaar: This study employed multi-method research by utilizing both qualitative and quantitative data gathering. A sample of 15 members of the Somali community in Central Minnesota was recruited for the study. Participants completed a brief quantitative survey to gather their basic background information (age, sex, employment, etc.) and a 30-60 minute semi-structured interview. The collected data was examined in order to investigate the potential effects of unique reactions to factors of acculturation within the Somali community, and how these factors play a role in the formation of gender roles and family structures. Feelings of value and self-identifications as members of the United States, age of arrival, and years of educational instruction appeared to have the most significant effects on the

alteration of perceived gender themes. Religiosity did not appear to have any significant effects on the alteration of gender roles.

Sinner: Studies have shown that people can be conditioned to think of nouns more or less positively when they have been paired with positive or negative adjectives, a phenomenon called Evaluative Conditioning. In this project, I attempted to replicate an experiment that used evaluative conditioning with names. I also investigated how the word "not" was processed in evaluative conditioning, by using "not + adjective" phrases to condition the names in some conditions. I found a significant gender difference in how "not" was processed.

Interdisciplinary Presentations:

Asian Studies

Buske, Baggenstoss: Showing the basic history of women in China and the discrimination that they faced by society/men/culture in the past. Then also discussing the effects seen today — how women are treated now in general as well as discussing the one child policy and the gender roles/discrimination related to that.

Gonzalez: Chinese culture varies from each geographical region, and many treasures lay within each of the five autonomous regions. In an oral presentation I will explain the beauty of China and how its resources are those that can only be found in such a vast amount of land.

Her: Smooth and sharp filled with her own unique style, Nakasone Rino is a well-known dancer and choreographer from Okinawa, Japan, who came to the U.S. to reach for her dream as a dancer. She grew up watching and dancing to Michael Jackson who became her greatest inspiration. In the U.S. Rino's talent became recognized as she taught classes and collaborated with many different artists such as Chris Brown, Rihanna, and Janet Jackson and groups such as the Beat Freaks, who got selected to be in a competitive television dance show called America's Best Dance Crew. Not only is she well-known in the U.S., she is also known in Korea for her work in choreographing for a popular entertainment company called SM Entertainment. Rino is currently teaching her own classes while keeping up with her busy schedule. With her passion, she has become an inspiration to many dancers around the world (in Japanese).

Her: Umematsu Nobuo is a respected video game composer who was born in Kochi City, Japan, on Dec. 21, 1959. He is best known for composing music scores for the Final Fantasy series. When he was young he wanted to be a great pianist like Elton John, who was his influence as a child. Through his love for music, he decided to seek a career as a composer and the rest is history (in Japanese).

Lahti: In 1930 six Benedictine sisters from St. Joseph, Minnesota embarked on a mission in China to serve the distressed Chinese people. In this project I will use the extensive Benedictine archival material including letters and other documentation in order to understand what the underlying motivations for their mission were and how the Japanese occupation of China altered these goals. Through this research it became clear the Benedictines wanted to practice the social gospel, baptize Chinese natives, and undergo a form of Catholic asceticism in their mission and that the Japanese occupation had ambivalent effects on these three goals.

Laine: From 1937-1950, Chinese women took on new positions in society in response to the Communist Party's agenda and to escape from the traditional gendered restrictions in society. By analyzing memoirs of women written in the early 1900's and their involvement in the CCP, I came to the conclusion that women

were critical to the CCP's success and their involvement has helped them escape from traditional oppression.

Lee: World War II had devastating effects throughout Asia and claimed many victims. Korean comfort women had a terrifying experience as sexual slaves for the occupying Japanese soldiers. When one of South Korean comfort women spoke up about her horrible experience in 1991, it triggered the comfort women movement in Korea but also other parts of world. By reading primary and secondary scholarly articles, books, and testimonies, and examining the Korean political system I will examine how comfort women remembered their experience and what they want to convey to the public by telling stories which they had kept secret for 50 years.

Lee, Vang: The first woman ruler who gained full political power of China during the Tang Dynasty from 649-705 BC, Wu Zetian entered the Imperial Palace as a concubine to Emperor Tai Zhong. Wu Zetian rose to power because of her breath taking beauty which captured the attention of not only the current Emperor, but also the future crown prince, Gao Zhong. Wu Zetian served as a consort to Tai Zhong, but was sent to the nunnery after failure of being his favorite concubine. She was summoned back to the Imperial Palace under Emperor Gao Zhong. She was able to gain and influence political power greatly because of her previous knowledge while she served as a consort. During this period, Gao Zhong grew weak, opening the opportunity for Wu Zetian to governed from behind the curtain. It was rumored that she killed her own daughter to gain the Emperor's sympathy and blamed the Empress for the accident. As a result of this, the Emperor denounced his wife of her title and gave Wu the title as Empress. From her reign as Empress, she was able to yield power, control the Imperial Palace as her own, create her own dynasty, and dethrone anyone that comes in her way; the start of her ruthless aggressive supremacy.

Liang, Wang: Our group is selecting six Chinese women along the history and talk about the similarities and differences.

Liedl: In 1868 Japan was transformed from a feudal kingdom ruled by armor-clad warriors into a modern country ruled by an aristocratic bureaucracy. In October of 1944 the Imperial Japanese Navy began the organization of kamikaze units, whose missions were to sacrifice themselves in a series of all-out attacks against enemy targets. The effectiveness of the kamikaze forces has long been critiqued by historians and while the consensus is that the kamikaze attacks were ineffective from a military-achievement point of view, little is said about the effect that their sacrifice had on the fighting spirit of the general populace. My paper will look at the effectiveness of the kamikazes in terms of morale and the rekindling of the fighting spirit of bushido that many thought was lost after the Meiji Reformation of 1868.

Lurquin: Japan has struggled to come to terms with the significance of its defeat in World War II. This paper looks at the historical memory of that war as evidenced in Japanese manga, which are long plot comics, published in the 1960s and 1970s.

Mesfin: I present my time abroad in Japan, and its diverse cultures that I learned and discovered there. In particular, I discuss the differences between mainland Japan and Okinawa, as well as other important cultural aspects that I encountered during my studies at Bunkyo Gakuin University (in Japanese).

Sun: About 170 years ago, China faced a turning point of its history when it lost the Opium War. In response to that loss, Chinese civil service leaders created a "Self-Strengthening" strategy. My presentation will examine how government officials blended Chinese and Western culture and technology as part of this strategy. But, ultimately "Self-Strengthening" failed by 1895 and my paper will explain how and why it failed. I will be using the letters written in the 19th century, the official documents, diaries, letters, newspaper articles, and the pictures taken during that time to support my thesis

Traxler: The post-war period saw many economic, political, and social changes in Japan — one of which was the expansion of women's roles in society and presence outside the home. During the 1970s in particular, the Japanese feminist movement critiqued traditional ideals of women's sexuality, motherhood, and femininity in a parallel to the women's liberation movement occurring in the Western world at the time. This presentation looks at various factors in Japan that allowed for the emergence and growth of the Japanese women's liberation movement, as well as some of the issues it faced and successes it achieved (in Japanese).

Whitcomb: Over 60 years ago, India was granted independence from British rule. Prior to independence, India's diverse communities sought to gain political influence, particularly the diverse Indian Muslim community. In this project, I analyze how the All-India Muslim League helped to define an Indian Muslim identity through an examination of their leader — Muhammad Ali Jinnah. My research will utilize political speeches, letters, and other writings from the 1930s and 1940s. All of the primary sources address various audiences concerning the partition of India. In the conclusion, the research will show how Indian Muslims became united under Jinnah's leadership and grew to form a solidified Indian Muslim identity.

Yang: Kurosawa Akira was an acclaimed Japanese film director and producer. He made many classic films that were also popular in the West. My presentation introduces his life, his interest in film studies and his famous movies. My favorite is "Ran," so I will present more details about the film production and story (in Japanese).

Yang, Wang: There are a lot of differences between Chinese and Western marriages. What we are going to talk about is the history of Chinese weddings and how they develop. The presentation aims to give people a clear comprehension of a Chinese-style wedding.

Zeng, Chun: A lot of differences about women in past and now.

Natural Sciences, Humanities Poster Session

Mathematics

Allie M. Anderson (Bret Benesh, Mathematics) Our Number System

I am going to teach Mayan students how to use our number system.

Hannah M. Anderson (Bret Benesh, Mathematics) Russian Peasant Multiplication

I will create a poster describing how the Russian Peasant method for multiplication works.

Brianna M. Boseo (Bret Benesh, Mathematics) Teaching base ten

Teach Mayan students how to use our number system

Sarah C. Broos (Bret Benesh, Mathematics) How can you quickly tell if a number is divisible by 3, and why this works.

I will work on answering the question, how can you quickly tell if a number is divisible by 3 and why this trick works.

Yesenia Corral (Bret Benesh, Mathematics) Math

I am doing a poster on teaching how to do a math algorithm.

Kelly A. Davenport (Bret Benesh, Mathematics) Teaching Mayan students base 10

I am going to use visual aids to teach Mayan students who use base six to use base 10.

Andrea M. Driscoll (Bret Benesh, Mathematics) No more Mayan math

I will be making a poster demonstrating how to teach Mayan students to use our number system.

Megan Favorite (Brett Benesh, Mathematics) Russian peasant multiplication

Will have a poster to explain what Russian peasant multiplication is and how it works

Bridget A. Foley (Brett Benesh, Mathematics) Russian peasant multiplication

How Russian peasants would multiply and why it works

Caylee J. Haus (Bret Benesh, Mathematics) Math 121

There is a fast and easy way to determine if a number is divisible by three in base 10. I will explain why this method works.

Alison A. Hanus (Bret Benesh, Mathematics) Mayan system

I will make a poster that would explain to a Mayan student how to use our number system.

Regina A. Joyce (Bret Benesh, Mathematics) Math project

Consider extensions of our Last Cookie game. What if you could remove either two or three cookies per round, but not one? What if you could do one, two, or four? What about other combinations?

Samantha J. Keller (Bret Benesh, Mathematics) Base 10 number system

Teach Mayan students how to use our number system

Stephanie M. Loecken (Bret Benesh, Mathematics) Russian peasant division

I will be explaining not only how, but why this gives the correct answer to a division problem.

Valcia H. McGann (Bret Benesh, Mathematics) Divisibility of whole numbers

There is a fast and easy way to determine if a number is divisible by three in base 10. This poster will explain how and why this method works.

Katie Y. Nelsen (Bret Benesh, Mathematics) Teach Mayan students to use our number system

Teach Mayan students to use our number system

Luke T. Ramos (Bret Benesh, Mathematics) The wonderful world of math

An informative math-based presentation

Renee C. Ries (Brett Benesh, Mathematics) Casting out nines

I will explain the method of "casting out nines" and explain why it works.

Kayla A. Reininger (Bret Benesh, Mathematics) Divisible by seven

In my project, I will describe why the algorithm to determine if a number is divisible by seven works in the way it does. Instead of just describing HOW it works, I will give a detailed description as to why this works.

Olivia J. Rodriguez (Bret Benesh, Mathematics) Russian peasant multiplication

Explaining the Russian algorithm of multiplication

Pa K. Thao (Bret Benesh, Mathematics) Our number system

Teach Mayan students how to use our number system

Allison R. Wenker (Bret Benesh, Mathematics) Russian peanut multiplication

Explain how this method gives the correct answer to standard multiplication algorithms.

Youa Yang (Bret Benesh, Mathematics) Casting of nine

I will be explaining what cast of nine is and why it works the way it does.

Nursing

Nicole C. Andres (Carrie Hoover, Nursing) Bedside report

Abstract

The end-of-shift report for nurses is an important time where nurses share essential information about their patients to the next nurse. For years change of shift report has been done at the nurses' station or other areas outside of the patient's rooms. Change of shift report is vital to patient care and takes place in a short frame of time. Unfortunately during this 10-15 minutes there is a risk that nurses may communicate unnecessary or irrelevant information, or they may miss key information that is relevant to patient safety and quality of care. Patients are also seldom part of the process during change of shift report. Research demonstrates when patients are a partner in the shift report patient safety and quality improve. A relatively new method of change of shift report is exchange of information at the bedside. Bedside report allots better continuity of care and gives a more accurate and complete view of the patient. Bedside report also allows the patient to be actively involved with the care they are receiving. This practice improvement project explores the literature on the use of bedside reporting, including benefits, risks and barriers to implementation and sustainability. Education will be provided to the staff and leadership of one central Minnesota hospital.

Cassie L. Cabor (Rachelle Larsen, Nursing) Oximeter education and protocol update

According to Environmental Health & Public Health Consults (2012) "...nearly 100 million procedures are performed at hospitals each year, and litigation arising from nosocomial infections is increasing nationwide."

Nursing staff need to focus on the prevention of these infections by cleaning medical equipment, and providing a clean, sanitary environment in health care facilities. Cleaning is especially important for equipment utilized by multiple patients or for equipment passed from room to room, including Oximeters. Other facilities have policies in place addressing the cleaning of this equipment. My facility needs to update their equipment cleaning protocol, and staff needs to be educated on these updated procedures. Doing this will prevent increased infection rates and ensure that patients receive quality and safe care.

Kacie R. Dingmann, Emily J. Fagerholm (Kathy Twohy, Nursing) Foley catheter care and maintenance in acute care facilities

Abstract

Background: Current practice focused around Foley catheter care and maintenance in acute care facilities suggests that there is a lack of knowledge and/or education on proper techniques to prevent CAUTI and other adverse events from occurring.

Objective: The aim of this quality improvement project is to re-educate the staff about important measures that needs to be taken with Foley catheters.

Method: An audit was completed looking at various concerns regarding Foley catheters — hand hygiene, securement device attached, no dependent loops, Foley bag clear of floor, below bladder and why this patient has the catheter in place. A short teaching session with be completed to NA/RN. After an audit will be completed again to see if the education was effective and what further needs to be enforced.

Results: There needs to be an emphasis on the education of the importance of securement devices, keeping the bag clear of the floor and when is the proper time to remove a Foley catheter. After re-auditing we will be able to tell if the education was effective.

Conclusions: There are some knowledge deficits in regards to proper Foley catheter care. Hopefully, after educating staff, these deficits will be resolved.

Anna R. Dixon (Rachelle Larsen, Nursing) Efficient transfer of infants

Staff at one neonatal intensive care unit identified an issue with the transfer of infants to the infant care center. The limited transfer planning and lack of standardized nursing reports are creating increased anxiety for the families which impacts patient satisfaction and quality care. The goal of this project is to identify evidence based practice interventions that will improve the transfer planning process, creating timely patient transfers that will help to decrease parental anxiety and improve quality and safe patient care.

Rebecca R. Dummer (Carrie Hoover, Nursing) Quality nursing care for the neutropenic patient

There is research that documents evidence of serious risks associated with neutropenia which include infection, delays in cancer therapy, prolonged hospitalizations for IV antibiotics, and increased mortality. According to a recent study, the role of oncology nurses should include neutropenia risk assessment, management, and patient/family education. This practice improvement project will review the literature to determine best practice for neutropenia assessment in order to reduce associated complications. A survey was developed to collect data related to oncology registered nurse's perceptions of their role in risk assessment, management, and patient/family education in the neutropenic patient. In addition, this project provides recommendations for one Minnesota metropolitan urban hospital to improve quality of nursing care in the neutropenic patient.

Margaret M. Engelmeier (Kathy Twohy, Nursing) Medication administration safety

Medication administration in the PACU of a surgical center is a vital nursing role. Because the medications are contained in a small storage container, with the vials and labels being similar to one another, and if the environment becomes extremely fast-paced and stressful, several instances of medication errors or near errors have recently occurred. I have studied the factors that contribute to medication administration errors and made suggestions to ensure patient safety, especially when they are in a vulnerable state.

Hans S. Gunness (Carrie Hoover, Nursing) Treating heart failure by recognizing and treating sleep apnea

Abstract:

Sleep apnea (SA) is a chronic condition where breathing ceases for 10 seconds or more during sleep, which diminishes blood oxygen levels. Obstructive sleep apnea (OSA) is caused by an upper airway obstruction while central sleep apnea (CSA) is caused by the failure of the brain to initiate a breath. People with heart failure (HF) are at a high risk for one or both of these sleep disorders. A recent study showed that 71 percent of people with HF have some type of sleep apnea but few are diagnosed. SA affects HF through a variety of adverse hemodynamic mechanisms. These adverse hemodynamic effects are longer lasting and more pronounced in HF patients, and have the potential to provoke myocardial ischemia and other HF complications. Studies reviewed recommend sleep studies be performed on everyone with HF and a poor cardiac performance, so early treatment can begin. Treatment has been shown to improve mortality, morbidity, and quality of life. The goal of this practice improvement project is to increase the assessment of SA in one central Minnesota hospital inpatient setting for patients with HF. A review of the literature and recommendations for assessment implementation will be provided to the inpatient unit.

Brittany K. Hoffman (Denise Meijer, Nursing) Head lice education in the Sauk Rapids-Rice school district

Head lice are an on-going problem in the Sauk Rapids-Rice school district. There is a lack of knowledge among faculty, staff, students, and parents about head lice and the district's policy related to head lice. Educating the faculty and staff is an important way to spread information throughout the district and is an easy population to access. My project will focus on the best methods for educating adult populations and the most current research that is available regarding the prevention and treatment of head lice.

Janelle M. Lawrence (Denise Meijer, Nursing) Complementary alternative medicine in pediatric bone marrow transplantation

The pediatric bone marrow transplant (BMT) unit collects data on patient satisfaction in a myriad of areas, demonstrating a continuation of low scores in pain control satisfaction. This project will educate patients and their families on CAM and how it can help them with pain and nausea. A sheet with brief descriptions on each CAM was developed along with detailed brochures to help patients and families choose a CAM therapy for pain control. The objective was to have a sheet that nurses can give families upon admission. The family will then choose any options they are interested in and the RN will give them a more detailed brochure about that therapy. The goal of this project is to increase pain satisfaction ratings. By providing information at admission on CAM, patients and families will consider other pain reduction strategies; increase pain management satisfaction would increase.

Francesca L. Levine (Kathy Twohy, Nursing) Minneapolis VA Spinal Cord Injury Center Practice Improvement Project

Evidence-based practice project to improve communication of the post-surgical skin flap protocol for wound healing and recovery — Created a multipurpose bedside flip chart with education, communication of daily plan and goals, and entertainment to improve communication of daily plan among staff and clients as well as increase client involvement in recovery process.

Janice Y. Lynch (Carrie Hoover, Nursing) Stretching as an intervention to help prevent/reduce back pain in nursing staff at a Hospice home

Back injury prevention in nursing

Background: Over and over again, studies suggest that nurses suffer from back pain more than any other occupation in the world. This is due in large part to repeated manual patient-handling and work done in extreme static awkward positions. Throughout an eight- or 12-hour shift, manual handling of patients requires that nurses lift, turn, and transfer patients by pulling, pushing, and turning on a repeated basis. Since most patients

weigh over 100 lbs., 65 lbs. over what the National Institute for Occupational Safety and Health (NIOSH) deems safe for lifting a cooperative patient, it is not surprising to see that back pain and injury represent the number one reason nurses spend time away from work. Objective: To review current literature and examine the effects of stretching in preventing back pain/injury related to manual handling and work done in extreme static positions.

Methods: A nine-question survey was distributed to nursing staff at an eight-bed Hospice house. Of the 27 surveys distributed, 21 (78 percent) were completed. Based upon the surveys returned, 67 percent experienced back pain as a direct result of performing duties at work while 27 percent reported receiving a back injury. Of these, the two most common reasons for sustaining back pain/injury were related to transferring and turning and repositioning residents.

Results: While we all know that exercise is important for our overall health and well-being, stretching is often overlooked as a fundamental component of our daily routine. Evidence suggests that stretching is important; it helps to reduce pain and constructs a more efficient body to prevent back pain from occurring and/or reoccurring.

Conclusions based upon research, it is my recommendation that stretching be included as a quality improvement intervention to help prevent and/or reduce back pain/injury in nursing staff at a local Hospice house. To carry out this recommendation, an educational poster will be constructed and placed in the nursing office depicting a conglomeration of exercises that are known for their properties in preventing and/or reducing back pain/injury.

Jessica A. Pfahning (Denise Meijer, Nursing) Radial artery access for diagnostic and interventional procedures

Physicians at Abbott Northwestern Hospital have begun accessing the radial artery for diagnostic and interventional procedures. The femoral artery has been the access point of choice for diagnostic and interventional procedures, but since the development of new technology (IR Bands, etc.) some physicians have been choosing to use the radial artery instead of the femoral. Due to this change in procedure the staff nurses on telemetry units are unfamiliar with how to care for a patient who has undergone a radial access procedure. Nurses must be educated on this topic to ensure safe, quality patient care. The aim of this project is to improve quality by educating the staff nurses on caring for patients who have undergone radial procedures. The effectiveness of this project will be measured by completing a survey before and after viewing an educational poster. The educational posters will be compiled of current research to support best practice care of post-procedure radial access patients and increase the knowledge level of the staff nurses who encounter these patients.

Nursing sophomore students (Carrie Hoover, Nursing) Nursing students' application of evidenced-based practice

Evidenced-based practice (EBP) in nursing is defined as care in which the nurse systematically finds, appraises, and uses the most current and valid research findings as the basis for nursing care. The use of EBP in nursing is essential to improve quality and safe care. At the sophomore level in a foundational nursing course, nursing students learn the importance of EBP and have an opportunity to apply the steps of EBP to various clinical scenarios. They are required to critically appraise the evidence, review current standards and protocols, and based on levels of evidence provide recommendations for practice change. Three groups of sophomore students have been selected as having the highest-quality poster-presentation and will display their poster at this scholarly forum.

Gabrielle N. Ruhland (Rachelle Larsen, Nursing) Fall prevention

Falls are a public health problem worldwide. Hospitalization increases fall risk because of unfamiliar environment, illnesses, and treatments. Falls may lead to negative outcomes such as injuries, prolonged hospitalization, increased dependency on nursing staff, legal liability, and increased risk of institutionalization. These outcomes are not only harmful to the patient but also increase costs of the healthcare system. The aim of this project was to examine which fall prevention interventions have been proven effective through evidence-based research and offer suggestions on how they can change current fall prevention policies at Paynesville Hospital.

Elissa M. Terhaar (Denise Meijer, Rachelle Larsen, Nursing) Methods of shift report and hand-off in a rural hospital

Shift report is defined as exchanging essential patient care information with other nursing staff at change of shift. The quality and organization of report can greatly affect patient outcomes. There have been incidents of inconsistencies in the report and hand-off methods used which resulted in misunderstandings and lower quality care. Due to these incidents and the amount of power report has, this project investigates different methods of report and hand off to find which methods demonstrate the best outcomes and would be most appropriate for use in a small rural hospital.

Sarah M. Thompson (Carrie Hoover, Nursing) Reviving TCAB

Abstract

In 2003, the Robert Wood Johnson Foundation (RWJF) and the Institute of Healthcare Improvement (IHI) introduced the idea of Transitioning Care at the Bedside (TCAB). It is a way of finding unit specific problems and issues in a hospital, and working on making a positive change. It involves any and all issues that occur on the units. After showing initial success, after a few years, TCAB has been falling short of its potential. Barriers preventing TCAB from reaching its full potential include lack of education for staff, lack of pressure to continue meetings, and general staff

confusion of responsibility. It is indeed a useful tool for nursing units. With further exploration, education, and leadership, TCAB could once again be used to improve patient care and worker satisfaction. The purpose of this practice improvement project is to reintroduce the idea of TCAB to the nurses and provide strategies to make TCAB sustainable for nursing units.

Katy E. Trost, Nicole M. Shaefer (Rachelle Larsen, Nursing) Infection prevention on the PICU and rehab units at Gillette Children's Hospital

Nationwide, hospital acquired infection is a serious issue for patients entering the health care system. At our children's hospital facility, there is a fairly low rate of patient to patient transmission, but there is a need for vigilance by the staff nurses to improve environmental cleaning and hand hygiene. Our project will look at ways to improve infection control knowledge and practice among pediatric nurses in the facility. This increased knowledge and skill will ultimately prevent the spread of illnesses between patients.

Lauren K. Varberg (Kathy Twohy, Nursing) Preventing and treating peripheral IV infiltration and extravasation

Peripheral IV's are used on a daily basis in the pediatric intensive care unit at Children's Hospital and for the majority they do not cause issues and provide great benefit to the patients. However the risk of infiltration and extravasation are always possible and if they occur can be a big concern, especially in the pediatric population. Children's has an IV infiltration/extravasation protocol in place and also requires documentation on IV sites every hour. Documentation has been great at this facility and yet infiltrations and extravasation are still occurring and are often too late to reverse once noticed. Due to this inconsistency I will be reviewing the current protocols that Children's offers for infiltrations, extravasation and the proper documentation tables used, compared to those of best evidenced based practice. I will discuss ways to prevent both infiltration and extravasation and what to do if it does happen to reduce the amount of damage and provide maximal healing.

Nutrition

Taylor R. Boyum (Amy Olson, Nutrition) Energy drink mixed with alcohol consumption patterns, motivations, and outcomes in CSB/SJU students

Abstract

Purpose/Background: Wide-awake drunk, or blackout in a can? In recent years combining alcohol with energy drinks has become popular. Consuming energy drinks mixed with alcohol (EDmA) is linked to an increase in alcohol poisoning, extensive hangovers, and blackouts. The

purpose of this study was to determine the intake patterns of EDmA, in College of Saint Benedict and Saint John's University (CSB/SJU) students. Methods: A written survey, which questioned student's patterns, motivations, and outcomes of consuming EDmA, was completed by 94 CSB/SJU students. The survey was conducted over the course of two evenings at a local bar. Students were asked to participate and anonymously complete the 11-question survey as they entered the bar. The survey used a five-point scale (one = least significant/disagree and five = most significant/agree) to determine the reasons why students consume EDmA and what effects students witness or experience by consuming EDmA. Results: 100 percent of the students admitted to having consumed an EDmA. Sixty-four out of 94 students reported consuming EDmA "often," and averaged one-two EDmA per occasion. A large majority of students consumed EDmA because of its popularity as a shot (89 percent) and 58 percent drank EDmA because someone else bought it for them. The three most significant reasons to consume EDmA were: 1) to get drunk (4.6 ± 0.5), 2) to socialize (3.6 ± 0.8), and 3) liking the taste (3.4 ± 0.6). The most common effects experienced or witnessed included blacking out (4.4 ± 0.1), extensive hangover (4.2 ± 0.5), and drinking more than expected (4.2 ± 0.3). Conclusion: 68 percent of the CSB/SJU student population studied consumed EDmA often. Students report many of the negative effects associated with EDmA such as alcohol poisoning, hangovers, and blackouts. The number one reason students consume EDmA is to get drunk, which can also lead to risky behaviors, like drinking and driving, using illegal substances, and impulsive sexual behavior. Many of the students recognize that consuming EDmA is more risky than alcoholic alone, but do not know why.

Kelly M. Donahue (Amy Olson, Nutrition) Correlation of vitamin D status with performance in female cross country runners — a follow-up study

Introduction: Vitamin D deficiency is more common among athletes than previously recognized, especially during winter months, and in geriatric subjects vitamin D deficiency is correlated with a decrease in muscle strength. Purpose: to determine if two weeks of vitamin D supplementation of 2000 IU/day in mid-January restores serum vitamin D levels in female cross country athletes to optimal levels [$> 75\text{nmol/L}$] and whether the increase in vitamin D affects aerobic and anaerobic performance. Methods: IRB approval and informed consent were obtained. Eighteen women were randomly assigned to vitamin D (treatment, 2000 IU) or thiamin (control) for 15 days; 11 participants completed the study. Blood collections and anaerobic and aerobic tests were conducted before and after 15 days of supplementation. ELISA kit (ALPCO) was used to measure vitaminD3 25(OH) levels. Participants completed a 3k time trail indoors to assess aerobic performance and a 20-meter sprint and an anaerobic treadmill test to assess anaerobic

performance. Results: data were analyzed by repeated measures of analysis of variance. Vitamin D levels between the groups were not statistically different. No significant differences were obtained for any of the performance measures (sprint test, anaerobic treadmill test, and 3k time trial) between the treatment and control groups. Conclusion: our previous vitamin D study with the team influenced participants because ~47 percent were taking vitamin D supplements prior to this study. Consequently, the initial vitamin D levels were higher during January than previously observed (total mean 85.8 ± 49.4 nmol/L). Participants on average started and finished this study with optimal serum levels; vitamin D supplementation under these conditions did not have any measureable effects on performance.

Abby J. Gallagher, Jacquie M. Donohue (Amy Olson, Nutrition) “It’s not good enough for YOU to be in the water, the Water has to be in you” — Hydration status of Swimmers

Introduction and purpose:

Fluid replacement is frequently overlooked by athletes competing in water and there is limited research available assessing hydration status and female swimmers. Thirst is not always a reliable indicator of fluid needs; therefore, an athlete must be aware of their hydration status. The objective of this study was to examine perceived hydration status versus actual hydration status of DIII female college swimmers.

Methods:

Data was collected from 25 athletes from the College of Saint Benedict swim team over three consecutive practices. IRB approval and signed informed consents were obtained. Subjects completed surveys before and after practice regarding their own perceived hydration status on a scale of 1-10 (1=very hydrated, 10=very dehydrated). Subjects answered two survey questions to test their knowledge of dehydration’s effects on the body before the first practice. Urine samples were collected immediately before and after three practices; urine specific gravity was determined through using a refractometer. Each athlete was given a 32 ounce water bottle during practice that was refilled as necessary. Water bottles were returned immediately after practice and total fluid intake was recorded.

Results:

Urine specific gravity of all athletes before practice indicated an averaged 1.017 ± 0.009 [1.001-1.036], indicating minimal dehydration; after practice athletes were well hydrated with an average specific gravity of 1.009 ± 0.007 [1.000-1.030]. Data pooled from three practices indicated 23 out of 64 swimmers came to practice either significantly (SG 1.021-1.030) or seriously (SG >1.030) dehydrated. Improvement in hydration was illustrated in 19 of these swimmers during practice [four swimmers demonstrated no change.] There were 27 swimmers minimally dehydrated (SG 1.010-1.020) before practice; throughout practice 24 of these individuals improved status to well hydrated (SG <1.010) and three stayed minimally dehydrated. Before practice 14 athletes came well hydrated with 12 staying well

hydrated and two decreasing to minimal dehydration. Fluid consumption during practice averaged 16.11oz \pm 7.098 [2-32]. There was no correlation between self-perceived hydration status and actual urine specific gravity. Nearly all subjects (92 percent) were either well informed or possessed some knowledge of the signs of dehydration and dehydration's effects on athletic performance.

Conclusions:

Only 22 percent of swimmers came to practice well hydrated while 36 percent were significantly or seriously dehydrated. Individuals coming to practice well hydrated drank more than those significantly dehydrated at the beginning of practice. The athletes were unable to accurately assess their own hydration status before and after practice. The swimmers know the signs and symptoms of dehydration but many are coming to practice chronically dehydrated. The obstacles preventing adequate fluid consumption need to be identified.

Elizabeth A. Petterssen, Jessica N. Vargason (Amy Olson, Nutrition) Relationship of fruit and vegetable intake with serum C-reactive protein levels in college-aged students

All chronic diseases are caused by inflammation. Diets high in fruits and vegetables are associated with lower levels of inflammation, and lower risks of chronic diseases including cardiovascular disease and diabetes. C-reactive protein (CRP), an inflammatory marker, provides insight on the level of inflammation therefore potential risks of chronic diseases. A low CRP level is classified as less than 1 mg/L; a medium CRP level is between 1mg/L and 3mg/L, and a high CRP is $>$ 3mg/L. The purpose of this study was to determine whether high fruit and vegetable intake is inversely associated with serum CRP levels in college-aged subjects. Methods: the Institutional Review Board (IRB) of the College of Saint Benedict/Saint John's University approved the study and informed consent was obtained from all participants. Students from a college nutrition class were asked to complete a seven-day diet record and a pre-study survey, screening for factors that affect CRP levels, such as smoking, alcohol consumption, recent injury, activity level and stress level. Twenty-seven subjects (six males, 21 females) participated. CRP was measured with a 50-microliter sample of blood using hs-CRP cassette and the Cholestech LDX System. Participants' seven-day diet records sorted into respective groups based on the number of fruits and vegetables consumed per day and the variety. The high fruit and vegetable [HFV] group (n=11) consumed more than five servings with five different types of fruit and vegetables per day; the medium fruit and vegetable (MFV) group (n=7) consumed between two and five servings a day, with some variety present; and the low fruit and vegetable [LFV] group (n=10) consumed less than two servings a day, with little variety within the seven-day diet period. Results: Serum CRP levels were inversely associated with fruit and vegetable intake. The CRP mean \pm SD for the HFV group was 0.60 \pm 0.60 mg/L; for the MFV group, 0.95 \pm 1.2 mg/L; and for the LFV group, 3.43 \pm 3.25 mg/L. Analysis of variance was used to determine

the difference between groups; the CRP mean of the HFV group is statistically different from the CRP mean for the LFV group [$p = 0.013$.] There were no high CRP values in the HFV group; in fact 82 percent [9/11] in HFV group had low CRP values while 50 percent of the individuals [5/10] in the LFV had high CRP values. Conclusions: Individuals in the HFV or MFV groups on average have CRP levels below 1 mg/L [low CRP] but those in the LFV group have on average CRP values in the high range [CRP > 3mg/L]. Five individuals had elevated CRP levels even in this young college-aged population indicating inflammation and if these elevated levels are chronic, an increased risk for developing disease. The USDA Dietary Guidelines' recommendation of five or more servings of a variety of fruits and vegetables per day appears to be good advice to keep serum C-reactive levels low.

Kari J. Sholing, Lindsay R. Ganong (Amy Olson, Nutrition) Got Raw Milk?

Introduction: The "got milk?" campaign is one of the most recognized marketing campaigns promoting the consumption and health benefits of pasteurized milk. But what if the health benefits are greater when milk is not pasteurized? A rising interest in raw milk has raised questions about the health benefits of consuming raw milk over pasteurized milk. Milk is a complex fluid that contains enzymes, probiotics, whey proteins, and many other components that, when pasteurized, become altered or damaged. Studies of milk raw consumption have supported health benefit claims such as reduced incidences of: asthma, atopic disease, allergies, digestive disorders, and more.

Purpose: This study was designed to evaluate health claims that consuming raw milk has better outcomes for growth and fertility rates than pasteurized milk.

Methods: Eighteen weanling mice were randomly assigned to one of two groups: raw milk or pasteurized milk. Both milks were whole and organic. Mice were grouped into breeding trios and given a fresh supply of milk every four hours between 7 a.m. and 11 p.m. for 55 days. Milk was the primary source of food with access to unlimited water and timothy hay, which provided a source of fiber. Milk consumption was tracked at each feeding by measuring the amount of milk that was provided and the amount of milk that was left from the previous feeding. The Institutional Animal Care and Use Committee approved this study.

Results: On average, the mice in the raw milk group consumed less milk but gained more weight; however, weight gain differences between groups was not statistically significant. Data were analyzed using a two-sample t-test (raw: initial weight 18.59g — final weight 37.32g; pasteurized: initial weight 18.20g — final weight 38.37g, P-value of 0.904). The difference in consumption, however, was statistically significant (raw average consumption: 29.46mL, pasteurized average consumption: 34.01mL, two-sample t-test, P-value of 0.021). Volume of consumption compared to mean weight gain had a positive trend, but the difference was not significant. A paired t-test was conducted with a P-value of 0.056. The raw

milk group gained 0.105 grams per mL of milk consumed; the pasteurized milk group gained 0.086 grams per mL of milk consumed.

Conclusion: In conclusion, there was a trend toward greater growth efficiency with raw milk. There was no statistical difference between the groups with regard to birth rates or pup mortality rates.

Shannon M. Stadelman (Amy Olson, Mani Campos, Nutrition) Effect of vitamin D status on anaerobic performance in college basketball players

Vitamin D deficiency is prevalent among athletes especially during the winter months in the northern hemisphere (1). In a previous study with male cross-country runners, vitamin D levels were inadequate in December in 40 percent of runners and by February, 100 percent. Purpose: to 1) determine if a supplement of 2000 IUs/day of vitamin D for 90 days was sufficient to maintain optimal serum D3 status ($> 75 \mu\text{mol/L}$) in male basketball players, and 2) observe if D3 status correlated with anaerobic performance. Methods: IRB approval and informed consent were obtained. Twenty male basketball players participated. Blood collections and anaerobic performance tests [vertical jump and an agility T-test] were conducted in October and January; D3 was measured using an ELISA kit (ALPCO). Subjects were assigned to either vitamin D or thiamin (as placebo). Data were analyzed using repeated measures analysis of variance. Surveys were completed pre- and post-study to assess supplement use, tanning, and compliance. Results: Overall, 10 players had less than optimal levels of serum D3 ($<75 \mu\text{mol/L}$) in October and 12 players in January. Vitamin D levels between the groups were not statistically different. All subjects improved their vertical jump and agility T-test scores after 90 days, but there was no difference between groups ($p = 0.66$ for agility T-test and $p = 0.95$ for vertical jump). No significant differences were obtained for any of the performance measures (vertical jump, agility T test) between the treatment and control groups. Review of post-study surveys indicated that less than 15 percent of subjects reported taking the supplement 80-100 percent of time, and 45 percent reported taking the supplement <40 percent of the time. Supplements including vitamin D, even taken irregularly, appear to have prevented the dramatic drop in serum D3 levels that typically occurs during the winter months. Conclusions: No differences were observed between initial and final D3 serum levels in the vitamin D supplement group due to poor compliance. Measures to ensure compliance are essential to determine whether vitamin D status plays a role in anaerobic performance.

Jennifer J. Yelle, Cassie J. Dorschner (Jayne Byrne, Amy Olson, Nutrition) Is there a correlation between depression and inflammation in college students?

Introduction: The college population has many stressors in life which can elicit depressive symptoms and other factors may contribute to depressive symptoms. Academic pressures, relationships, developmental challenges,

etc. Depressed individuals have high psychological stress which elevates C-reactive protein (CRP), an inflammatory marker which can be measured through the blood. CRP levels indicate the extent of inflammation and elevated CRP appears to be associated with severe depressive symptoms. If CRP levels can be used to indicate the severity of depressive symptoms then dietary means can be used to decrease inflammation and reduce depressive symptoms.

Purpose: Our present study is intended to determine the extent to which CRP levels are correlated with depressive symptoms in college-aged students.

Methods: The study was approved by the Institutional Review Board at the College of Saint Benedict. All participants completed an informed consent. A total of 70 participants were recruited by a mass email message and were screened regarding anti-depressant or corticosteroid use. Individuals meeting these selection criteria were invited to participate. Depressive symptoms were measured by an online version of the Inventory of College Students' Recent Life Experiences (ICSRLE) and C-reactive protein levels were measured using a small sample of blood, hs CRP cassette and Cholestech LDX system. Analysis of the data will be done using a correlation coefficient (r value) between CRP levels and scores on the ICSRLE.

Results: Data is currently being analyzed and we anticipate that participants with CRP levels higher than 3 mg/L scored 147 points or higher on the ICSRLE indicating a correlation between high CRP levels and high amounts of depressive symptoms.

On the ICSRLE survey, an individual score of 49 or less will indicate low levels for depressive symptoms, 50-147 are moderate symptoms, and greater than 147 are high levels. CRP levels greater than 3 mg/L reflect high inflammation levels, however; less than 1 mg/L reflect optimal levels.

Conclusion: C-reactive protein levels may be used to measure the severity of depressive symptoms. If there is a correlation between CRP levels and depressive symptoms then CRP levels may be influenced by altering diet with omega-3 fatty acids and benefit depression.

Konnie S. Zimmerman (Amy Olson, Nutrition) Talking Dirty? How contaminated is your mobile phone?

Talking dirty has an entirely new meaning these days. Mobile phones have become a necessity to keep in contact with family and friends, but are now common within the work place, even healthcare and foodservice workers. These work environments have contact with people and food so the potential for transferring bacteria to individuals is high. The purpose of this study is to determine contamination on various styles of mobile phones and the efficacy of different disinfectants to sanitize to limit the transfer of bacteria.

Method: Thirty-four phones were collected from college students and divided between the four disinfectants (Clorox Wipes, 7th Generation Wipes, Wet Ones, and 70 percent Alcohol Wipes), containing different

active ingredients. Each disinfectant was tested with a variety of phone styles (Smartphone, slider/swivel, flip, Blackberry). These phones were swabbed with a 3M Quick Swab prior to disinfectant use. Each phone was swabbed again after being cleansed and air dried for a minimum of 10 minutes. Media from swabbing were transferred to 3M Petrifilm Aerobic Count plates and 3M Petrifilm E. Coli/Coliform Count plates and incubated at 35 degrees for 48 hours.

Results: 100 percent of the cell phones were contaminated.

Contamination ranged from 1-560 colonies per student cell phone. Smartphones had the highest average colony count (18 phones; 57 average colonies), followed by slider/swivel phones (10; 34), flip phones, and then Blackberry phones. Subjects (n=30) completed a questionnaire: 67 percent never cleaned their phones, although 53 percent washed their hands 5-10 times/day with 93 percent using soap and hot water. A paired t-test was used to analyze data. The effect of disinfectants was statistically significant ($P=0.01$), reducing bacteria on contaminated cell phones by an average of 83 percent (78-87 percent). Each disinfectant wipe appeared to be equally effective regardless of colony count or style of cell phone.

Conclusion: Mobile phones are indeed contaminated with bacteria and regular cleaning with commercial wipes regardless of active ingredients has a significant impact on lowering the overall risk of contamination.

Theater

Kaarin S. Johnston (Theater) “The Christmas House: Page to Stage”

In 2009 the theater faculty agreed to produce a, as yet unwritten, play by Kaarin S. Johnston, professor of theater. She received a grant from faculty development granting her reassigned time to turn the detailed scenario into a script. In 2011, after the third draft, Adam Houghton, Mark Hennigs, Willene Mangham, Ken Cartwright and Clarke Davis took the script and transformed it into a piece of theater while the student actors improved the script through hours of improvisation. Designs, a video clip and photographs will be displayed.

Fine Arts, Social Science Poster Session

Political Science

Jinyu Arasaki (Manju Parikh, Political Science) Okinawa — U.S. base at Futenma relocation controversy

Futenma relocation issue in Okinawa, Japan, has been a big controversy for nearly two decades without almost any progress. The problem is very complex as national security, peer pressure from group thinking, and national interests of different countries are combined together. There is also gap of miscommunication at both domestic and international levels. I

will discuss current situation of the problem and also compare different perspectives from different countries and try to find a possible resolution.

Emily M. Bakker (Manju Parikh, Political Science) The economic collapse in Greece

The Greek economy has spiraled out of control and the country is on the brink of collapse. Greece was so far in debt that it lost its sovereignty to those they have turned to for financial support. The large amount of unemployed Greeks have begun to seek jobs and employment from other countries which is now affecting the countries they are immigrating to.

James A. Bell (Manju Parikh, Political Science) Triangular standoff: Iran, Israel, and U.S.

This project will examine the tense relations between Israel and Iran. It will also look at the potential impact on the United States if Israel does attack Iran's nuclear facilities as it has threatened to do.

Tyler C. Bright (Manju Parikh, Political Science) Challenges faced by Egypt's interim government

I would like to do my paper on the challenges that post- Mubarak government Egypt has been going through. Egypt was recently in the news for thousands of protestors wanting a new government, while the current government then was not willing to meet their needs.

Sebastine I. Chukwu (Manju Parikh, Political Science) Corruption of Nigerian government

Nigeria is known for their large supply of oil. The country receives a great amount of revenue from its exports of oil. Even though Nigeria is a wealthy country most of its profits are going into the hands of their leaders and not into the economy. This project will focus on the corruption in Nigeria.

Peter G. Fagrelus (Manju Parikh, Political Science) The growth of Russia's foreign influence under the reign of Putin

In-depth look at how Vladimir Putin maintained Russia's international influence during a time of political transition and regrowth.

Ryan M. Finnefrock (Manju Parikh, Political Science) International relations — the U.N. and their role in the Syrian conflict

In this research I hope to first and foremost learn more about the U.N. I want to look at the roles the U.N. has played in current issues in the Middle East (Syria).

Ngoc B. Hoang (Manju Parikh, Political Science) Handling troubled waters — the case of South China Sea

South China Sea is a key water region, accommodating about a quarter of world trade every year. With six states (China, Taiwan, Malaysia, the Philippines, Vietnam and Brunei) claiming authority over South China Sea, the dispute over ownership of the region has been of great significance, especially when tension has escalated a great deal in the recent years.

Kristen D. Juettner (Manju Parikh, Political Science) Muammar Gaddafi and Libyan regime

I chose this topic because Libyan conflict was a frequent headline during last year's news breaking stories. Gaddafi had been a leader for over 40 years and I would like to research as to why things ended the way they did, and how the Libyan government is recovering.

Joseph S. Kennealy (Manju Parikh, Political Science) AIDS in Africa

I would like to do my paper on the problem of AIDs in Africa. I am interested to learn more about this topic. Africa is very large though so I will focus my paper on one of the countries that has felt the impact of AID's the most, Uganda. In my paper I will look at why this problem started, what is the situation present day, and evaluate the steps that are being taken to solve this problem, and evaluate how close the U.N. is in reaching its Millennium goal involving AIDS

Alex J. Kreuser (Manju Parikh, Political Science) U.S. troops withdrawal from Afghanistan

There are many debates over the time and planning of getting our troops out of Afghanistan. The U.S. plans on all the troops being out by 2014; many think it can and should be done sooner than that. I will go into a brief history of the war, but primarily discuss the pros and cons of both leaving the troops in Afghanistan until 2014, and getting the troops out sooner than 2014.

Hannah E. Laudenbach (Manju Parikh, Political Science) Nuclear power in Iran

This poster presentation will focus on the nuclear issues that are occurring in Iran. Not only will it focus on what Iran plans to do with nuclear power, but it will also focus on the worries of Israel, the United States, and other states that may be affected by the issue.

Johnathan H. Ly (Manju Parikh, Political Science) Will the United States and China engage in armed conflict?

This project examines U.S.-China relations and explores the possibility of future armed confrontation between these two powerful states. Theories of international relations will be used in assisting the evaluation of possible outcomes.

Dylan N. Maas (Manju Parikh, Political Science) The rise to power of Kim Jong Il

My project will be about the life of Kim Jong Il. I'll focus mainly on his rise to power and how he has shaped the way North Korea is today.

Derec R. Martie (Manju Parikh, Political Science) Why we still need nuclear power.

The earthquake that hit Japan's nuclear plant leaves people with the impression that nuclear power has greater cons than pros. When in reality there are just as many pros as cons, which is why we still need nuclear power in today's world. I will focus on bringing both the negatives and the positives of nuclear power together to come to a conclusion of whether or not nuclear power is the best way to produce power.

Tyler C. Martin (Manju Parikh, Political Science) Is the U.S. too dependent on foreign oil?

In my presentation I will discuss the United States' dependency on foreign oil. I am interested in learning about the topic. I will explain why pursuing other energy resources might be in our best interest. I will incorporate possible solutions to the problem, and explore our political ties to other countries based on our dependency for oil.

Rachel L. Massopust (Manju Parikh, Political Science) Beyond blood diamonds and child soldiers: how is the situation in Sierra Leone?

This presentation will delve into the problems surrounding the economy, and civil reconstruction that have taken place in Sierra Leone over the past few years. The project will also discuss the genocide and issue with child soldiers that have plagued the small African country in the past.

George S. Noesen (Manju Parikh, Political Science) The world since 9/11

I will present a poster on how the world has been affected since 9/11. The terrorist attacks of 9/11 on America have served to significantly influence world politics and international relations by bringing countries closer, while others push further apart. I will go into detail about terrorism, lessons that have been learned politically, why this event occurred and how events like this can improve relations with other countries.

Brittany M. Peterson (Manju Parikh, Political Science) Ethnic conflicts in Myanmar

I would like to research about the internal ethnic conflicts in Myanmar. I am interested in examining how these internal conflicts arose, what is going on today, and what can be done to limit the fighting.

Charles S. Peterson (Manju Parikh, Political Science) U.N. troops — How can we make peacekeeping more effective?

I wish to describe how the U.N. troops are engaged in peace keeping around the world. I will look into what kind of weapons and armor do these military personnel use and what kind of training they receive. I will examine a couple of cases to examine their effectiveness.

Steven J. Pignato (Manju Parikh, Political Science) United States relations with North Korea

I would like to research the political relations between the governments of North Korea and the United States. I am interested in this topic because I feel that with Kim Jong Un in power, the United States Government has a perfect opportunity to improve its relations with the North Korean Government. I would like to follow my research with an account of the current relations and any progress that may have already been made in order to improve the relations between the two governments.

Jacob S. Rawlings (Manju Parikh, Political Science) The impact of terrorism on business in the United States and Middle East

I would like to write my paper on the negative impact of terrorism and the threat of terrorism on foreign investment, tourism, airlines, oil prices, consumerism, and economic growth in the United States and in the Middle East. I am really interested in the economic effects of terrorism.

Joshua M. Rebholz (Manju Parikh, Political Science) Fair trial for terrorists

I want to do research on fair trials for terrorists, and if they should/should not be allowed a fair trial by United States law. I want to go in depth about Guantanamo Bay detention facility and the prisoners there.

John J. Rice (Manju Parikh, Political Science) Current status of Christians in Egypt

My topic is about Christian minority in Egypt, and how the new government's policies will affect them. There is a lot of concern among Christian Egyptians that the post-Mubarak government forming in Egypt will be anti-Christian, and that they will be discriminated against, or worse. This belief is being reinforced by events such as the massacre of 25 Christians during a peaceful protest in Egypt.

Jesse C. Rogers (Manju Parikh, Political Science) Greece's sovereign debt crisis: understanding its fiscal and monetary policies

Short Description:

I want to analyze the problems with Greece's monetary and fiscal policies, and find out where its problems stem from.

I want to look at Greece's ability to pay off its debts and the relationship with Greece among the Eurozone. I am interested in looking at Greece's history with its two previous bailouts. I want to look at the possibility and likelihood of a third bailout plan and the dilemma the EU is facing with its member countries like Greece. My focus will be on fiscal & monetary policies of Greece and its governmental debt problem, primarily its roots.

Philipp Roye (Manju Parikh, Political Science) China's rise: opportunities, challenges and how it will affect the new world order

Whereas developed countries and their economies crumble under the devastating results of the last economic crisis, China seems to be passing us in the fast lane on the way to achieve its ultimate goal, mainly to become a global superpower. Not many Americans and West Europeans have knowledge of how China's extraordinary rise will affect their lives in the years to come. Yet, we know what is happening today in China — province by province, city by city, why it will affect everyone and in broad terms is the goal of this presentation. This research paper/presentation addresses the opportunities that arise due to the establishment of the new superpower but also the challenges that the rest of the world has to face.

John W. Schwend (Manju Parikh, Political Science) U.S. and North Korea: new relations?

My project hopes to review the relationship between North Korea and the United States with the accession of Kim Jon Eun and to see if there could be a mutually beneficial relationship between the two countries in the future.

Robert M. Stocker (Manju Parikh, Political Science) International law and the International Criminal Court

I will examine how the International Criminal Court (ICC) operates and how that affects the landscape of international relations. I will look into the areas of jurisdiction that this court has and how it can go about enforcing laws on states. I will also attempt to explain the manner in which the ICC court system runs, as far as hearings, proceedings, along with other key components that make up the intricate workings of the ICC court system. I will also touch on some recent important cases the ICC has dealt with.

Maojie Sun (Manju Parikh, Political Science) Crisis in North Korea, and the risk of world war

In my research project, I would like to give a brief background of North Korea and more specifically its nuclear policy. In addition I would like to talk more about different opinions in regards to the North Korea's nuclear threats as well as its impact on other countries. For instance since 1952 the nuclear club has grown to at least eight nations, while more and more countries are making serious attempts to join. I would like to explore the impact and danger of world war from nuclear proliferation.

Jeremy Wahl (Manju Parikh, Political Science) "Casino Capitalism:" an investigation into the argument on a theory of modern capitalism

This presentation will address the economic theory of Casino Capitalism which says that the global economic system is becoming more like a casino as time goes on. The scholarship driving the notion will be investigated by looking at the proponents and critics of the argument. Influence of modern technology exemplified through factors such as increased speed of economic transactions and general innovation of the financial system will also be considered.

Maoxinyu Wu (Manju Parikh, Political Science) Understanding China's Soft Power

In my research, I would like to examine Chinese growing influence through its soft power in specific applications and policies. Also, I would examine two sides of opinions in terms of the future of Chinese soft power. One side states that it's already a threatening power to the U.S. At the same time, the other side thinks there is still a long way to go for China to develop its strength in its soft power.

Qian Zhang (Manju Parikh, Political Science) China and Vietnam's dispute about the South China Sea

On March 3, there were 21 Vietnamese fishermen that were detained by Chinese government on Parcel islands in the South China Sea. The Vietnamese government thought Chinese government should release these fishermen and insisted that they were in the Vietnamese water. China has had similar disputes with other neighbors such as Japan, Korea, Philippines and Brunei. In my project, I will analyze the disputes in the South China Sea from different perspectives and see if a solution can be found in International law.

Sociology

Joslyn P. Brugh, Steve Watanaskul (Sheila Nelson, Sociology) Honolulu's sex trade

What is it about the population and organization of Honolulu that makes it a target for sex trade? In a partnered study, this project will explore the case of Honolulu, HI, and determine the sociological reasons for the prevalence of sex trade.

Rachel M. Daniel (Chris Scheitle, Sociology) To cooperate or not?: factors affecting frequency of collaboration for religious nonprofits

Motivated by arguments concerning the relationship between religious pluralism and religious participation, research in the past 30 years has focused heavily on competition between religious organizations. However, cooperation should not be overlooked. In this research we examine religious nonprofits' frequency of collaboration with religious and secular counterparts. Utilizing data from a survey of religion-related 501(c)(3) public charities, we examine how task complexity, organizational resources, and transaction costs affect religious nonprofits' level of collaboration with other organizations. Our analysis finds that task complexity, as measured by geographic dispersion and organizational revenue, increases religious nonprofits' frequency of collaboration. Furthermore, we find that religious nonprofits identifying as "theologically conservative" are less likely to collaborate with secular counterparts. This finding is likely a result of these organizations perceiving that collaborating with secular organizations could cost them their religious identity.

Sierra S. Dooley (Shelia Nelson, Sociology) Dutch educational system

My poster will illustrate the uniqueness of the Dutch educational system, specifically focused on the city of Amsterdam. Compared to the United States educational system, Amsterdam displays more structure, limitation, and determinism. Children living in the Netherlands for any length of time are required to attend school from age 5-16, and some even start as young as four. Primary education begins at age five and ends at 12-years-old. In the final year of primary school (by age 12), the most appropriate type of secondary school is selected. Parents, children, and teachers make this decision together, along with the help of standardized national tests. There are three levels determined by the outcome: VMBO (4 years), HAVO (5 years), and VWO (6 years). These outcomes greatly determine the path of an individual through their tertiary level of education. My research also looks at the impact of this educational system on the quality of life in Amsterdam.

Angela Galliano (Jessica O'Reilly, Sociology) The public's perspective of Antarctica as influenced by their political views

The 28 consultative parties of the Antarctic treaty have stated that Antarctica should be managed for the benefit of mankind. This survey that is being conducted aims to get the public's perspective of Antarctica and how it should be managed (O'Reilly). The purpose of my research is to

determine a correlation between a respondent's political views and their responses to our survey. This information was gathered through a collection of one hundred responses to the survey. Those who consider their political views to lean more towards the left have, so far, shown that they are more supportive of keeping Antarctica a research continent while those that lean to the right tend to have the opinion that Antarctica should be open to the public. Furthermore, it appears as though the people I've interviewed in Minnesota have more conservative political views and values than those I interviewed in California. I hypothesize that these trends will continue as I evaluate my peers interviews and continue my own.

Brynn E. Haugen (Jessica O'Reilly, Sociology) Tourism in Antarctica

No native people reside on the continent of Antarctica, yet approximately 4,000 people visit Antarctica each year. Countries who have control over the continent frequently state that Antarctica should be managed for the benefit of mankind. To better understand what will "benefit mankind," a survey was created so that people can voice their opinion on Antarctica. This study aims to analyze society's idea about Antarctica, and more specifically, the number of people who visit Antarctica each year. This study also aims to better understand how people think Antarctica should be managed now and in the future. It is important to ask, how do people perceive tourism in Antarctica and what do they think about large-scale tours visiting the once pristine wilderness. The methodology of this study includes conducting 20 ethnographic interviews, literature review and data analysis. This study will show a trend in people's views about tourism in Antarctica. It is hypothesized that a majority of people do not know the high number of tourist ships that travel to the vast continent on an annual basis. Most people are unaware of the number of tourists and do not support tourism on a large-scale in Antarctica.

Grace A. Janssen (Jessica O'Reilly, Sociology) Perceptions of wilderness: a focused study of Antarctica

In 1961 the Antarctic Treaty was ratified, since then the consultative parties (currently 26) to the Antarctic Treaty have managed Antarctica. These countries meet annually to discuss new management ideas. Their ultimate goal is to manage Antarctica for the benefit of mankind. As a response, a non-profit called the Antarctic and Southern Ocean Coalition was created in order to pursue "the ideals of the preamble of the Antarctic Treaty: that the Antarctic and the Southern Ocean should be reserved for peace, science and protection of the Antarctic environment." A questionnaire was created by members of the team in order to "get a better understanding of the perspective of the global public in respect of Antarctic and the way Antarctica should be managed now and in the future."

Section three of this questionnaire deals directly with the participants perception of the wilderness. The term wilderness is essentially indefinable because it varies due to personal preference. Popular evidence of the

ambiguity of the word can be found in the creation of America's first national parks and the tedious discussions that dominated policymaking for those involved. This paper focuses on the respondents description of wilderness, what it should and shouldn't include, and how that correlates the way Antarctica should be managed, and what activities that should include. The objective is that an understanding of the general perceptions of wilderness should have an impact on those involved in Antarctic policymaking due to a general notion that Antarctica is the world's last remaining wilderness area.

Molly C. Kelly (Jessica O'Reilly, Sociology) Educational level as a factor on public perception of Antarctica and how the Antarctic should be managed.

The study that was conducted is part of a larger study in which the goal is to gain a global perspective of Antarctica and how it should be managed and to illustrate to the consultative parties that people truly do have an opinion on how Antarctica should be managed. The goal of this paper is to address if education level, area of study and current profession play a role on how a person views Antarctica and on their current level of environmental awareness and knowledge. If education does play a role, how does education influence perception of Antarctica, especially perception of Antarctica as a wilderness, and how the Antarctic should be managed. If and how education plays a role on public perception is important for those interested in environmental issues because it can influence how environmental issues are approached in the future and influence how the consultative parties view organizations that want to have a say in how Antarctica should be managed and maintained. The consultative parties of Antarctica have scientific interest on the continent and control decisions on how Antarctica should be managed. Non-consultative parties can speak up but, decisions are made by the consensus of the consultative parties. Antarctica holds scientific and environmental importance; 99 percent of Antarctica is covered by ice and it holds 70 percent of the world's freshwater supply. The consultative parties have upheld the opinion that Antarctica should be managed for the benefit of mankind.

Katherina Larrea (Jessica O'Reilly, Sociology) Public perceptions on commercial fishing and whale hunting in Antarctic waters

In 1961, Antarctica became an officially managed part of the world. Twelve countries signed the Antarctic Treaty, which gave them the power to collectively manage the continent and its surrounding oceans. Since 1962, the number of countries that have signed the Treaty has grown from 12 to 28, and these countries meet annually to discuss how Antarctica should be managed. Within the treaty, it is stated that the countries that manage it should do so for the scientific benefit of mankind, which leads to the purpose of this study. In an attempt to understand what mankind really wants, we will conduct this research in the hope of discovering public

perceptions of Antarctica. The study will also focus on how the public thinks the continent should be managed, both now and in the future. For this particular study, we are also hoping to better understand public perceptions on commercial fishing and whale hunting in Antarctica. Currently, the Japanese are exploiting an International Whaling Commission loophole that allows for scientific whaling. They continue hunting whales and using them for commercial purposes, rather than the research they claim to be doing. Commercial fishing in Antarctica is also being exploited. Some species of fish have been captured so much that they have almost become endangered. Although fishing in Antarctica is now regulated by the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR), many fish populations are struggling to survive. This research will help us understand how the public views fishing and whaling, and hopefully provide insight into how to change these activities.

Zainab Oke (Sheila Nelson, Sociology) The Emirate that struck oil: a history of Dubai

Dubai has been inhabited since 3000 BC, but until the 1960's it has been a relatively deserted place. This presentation will provide an analysis of the sociological conditions that have contributed to the city of Dubai's recent and rapid transformation into a vibrant tourist destination.

Reynaldo Ortega, Akshya Mahindru (Sheila Nelson, Sociology) Impact of 9/11 on immigrants in New York City

New York City has become a thriving global city in large part because of the diverse cultures and contributions of its immigrant populations. But what happens to the immigrant stranger when a city experiences a major attack to its security? Our poster compares the situation of recent immigrants to New York, in particular Muslim immigrants, to conditions prior to the 9/11 attack on the World Trade Towers.

Isabel A. Pennings, Charles J. Enders (Sheila Nelson, Sociology) Santa Fe's culture and creative class

Richard Florida argues that the influx of a "creative class" can stimulate a city's economy, growth, and development. This project examines how Santa Fe's rich cultural heritage has influenced the creation of its "creative class" and how this class has affected the city.

Kirsten Peterson, Suzannah Hayhoe (Sheila Nelson, Sociology) Impact of the 2016 Olympics clean-up on Rio de Janeiro

This project will investigate the economic and cultural impact of the 2016 Summer Olympics clean-up efforts on the city of Rio de Janeiro, Brazil.

Since its selection to host the Olympics in 2009, Rio has staged a large-scale make-over on many of its most challenging problems such as drug trafficking, poverty, and violent crime. We will discuss what steps the city of Rio de Janeiro is taking towards making itself a great host city, and consider the long-term effects of those actions.

Yasas R. Ratnayake, Adam Bauer (Sheila Nelson, Sociology) Portland, Oregon: a new paradigm of city life

The geographic location and the natural beauty of the Portland area set the foundation for the development of a sophisticated, environmentally sustainable metropolis. Portland, also known as the City of Roses, has complimented its natural advantage with effective urban planning policies since the early 1900's. High-tech enterprises have flourished in the city, giving this ecological metropolis a technological edge as a thriving center of progressive thought, environmental stewardship, and technological sophistication. Portland has earned a reputation as one of the greenest and most livable cities in the United States and in the world.

Fine Arts Presentations:

Music

Wigtil, Kopp, Tomten, Knapper: Franz Joseph Haydn is credited as the inventor of the string quartet. Our presentation will trace the early development of the string quartet and discuss Haydn's contributions to this musical form. We will conclude by performing excerpts from Haydn's Quartet No. 63, "Sunrise" (Op. 76, No. 4).

Wojack, Lenczewski, Berns, Zheng: In his life, Mendelssohn studied Baroque and early Classical music extensively. He was deeply influenced by Bach, and his music shows a highly refined use of counterpoint as well as remarkable tonal clarity. This project will discuss the manifestation of these things within Mendelssohn's chamber music and will conclude with a performance of Mendelssohn's String Quartet No. 3, Op. 44 to demonstrate Mendelssohn's compositional techniques.

Humanities Presentations:

Gender & Women's Studies

Corral: Just like all isms, political sexism occurs systematically. It is difficult to achieve gender equality when there are not a reasonable number of women in congress/parliament that will have the needs of women in mind. Currently, there are 44,651 elected members of parliament in office. Of those we know that 8,406 are women amounting to a world average for women in parliament of 19.2 percent. However, there are countries that have come close to gender parity in politics. According to the Inter-Parliamentary Union there are only nine countries with a percentage of women in parliament above 40 percent. In the world classification chart issued by the Inter-Parliamentary Union December 2011 there are 129 countries with known parliamentary data. It is difficult to not notice that all five of the Scandinavian countries are in the top 15 countries in this list. In contrast we find the United States of America coming in at rank 78 with 16.8 percent of women in congress tying with Turkmenistan. When looking at the data one begs the question, why is there such a difference in the number of women in parliament among the Scandinavia and the U.S. Experts in the field of political science have studied the phenomena and some have concluded that although an important determinant of gender parity in any government is the culture of their society, the answer also lies in the electoral systems that each country employs which can create barriers to more diverse representation. (Inter-Parliamentary Union 2011)

Question: It has been well documented that Scandinavian countries greatly surpass the U.S. in regards to family friendly policies. Why?

I will examine political systems, history, and culture.

Sorenson: This presentation looks at how black masculinity, specifically hypermasculinity, is constructed and thought of in society and how that is represented in the National Basketball Association (NBA). It starts with a discussion of black masculinity in the United States and how it was formed. Specifically, it looks at the hypermasculinity, a violent and aggressive masculinity that is presented as the masculinity of black men, which is formed by different factors such as hip-hop and gangsta culture. It then looks at how black hypermasculinity is represented in the NBA by the players, specifically the stars of the league. Finally it will look at the possibility of different forms of black masculinity and if the understanding is changing from a violent and aggressive masculinity to something else.

Hispanic Studies

Anderson: La crisis económica mundial ha tenido efectos muy fuertes sobre España. Aunque los inmigrantes en España fueron una parte integral en el crecimiento económico de las últimas dos décadas, ahora desde aproximadamente 2008 la crisis

económica ha creado una actitud negativa en las opiniones de los españoles nativos sobre la inmigración a su país, uno que no sustenta con la evidencia de los expertos de economía y sociología. Con mejor entendimiento de la situación de la inmigración antes y después de la crisis este ensayo pretende convencer al lector que los inmigrantes se han vuelto en un chivo expiatorio.

Marston: My presentation for Scholarship and Creativity Day would be similar to my Spanish thesis presentation. The topic of my Spanish thesis was dental tourism. The reason I chose this topic is because I am pre-dental. Dental tourism is a new fad in which United States residents are traveling to Mexico to receive cheaper dental treatment. My presentation will argue that dental tourism is not beneficial to society because it is negatively impacting the Mexican economy, is decreasing the work of dentists in the United States and there are risks involved for the patients traveling to Mexico.

McEvoy: This honors thesis project was inspired by Shannon's study abroad experience in Chile in 2010. There she learned about activist public artists, such as the group Colectivo Acciones de Arte (C.A.D.A) and the muralist brigade La Brigada Ramona Parra.

After returning to the U.S., Shannon wanted to expand on her studies of art activism. She was also motivated to deepen her knowledge of modern muralism in the Americas, beginning with the Mexican Mural Renaissance of the early 20th century. Her research extended to Latino muralism in the United States. Specifically, Shannon wanted to explore this collaboration with the community during the mural process, both in the ideation and creation.

In the summer of 2011, Shannon partnered with Casa Guadalupe Multicultural Community (CGMC) to organize a community mural for the city of Cold Spring, Minn. The goal for this mural was to reflect the identity of Latinos in Cold Spring and create a culturally inclusive visual celebration of the town's history. Shannon and CGMC also wanted to empower youth and community members by involving them in the painting. This collaboration sparked many conversations that built relationships across cultures.

Shannon's research and artwork have given rise to a community mural, a written analysis of Latino/Latin American muralism, and an art installation reflecting on her own social role as a public artist.

Minten: Presentation will be given in Spanish. Hay miles de organizaciones sin fines de lucro y organizaciones no gubernamentales (ONG) que trabajan en el mundo en vías de desarrollo, intentando de aliviar la pobreza en esos lugares. Mi investigación enfocará en las ONG que trabajan en Guatemala, con el propósito de hacer una hipótesis sobre cómo podemos mejor hacer el trabajo de desarrollo en regiones similares. Exploraré algunos ejemplos de ONG que trabajan en Guatemala, muchas que reciben sus fondos desde tan lejos como los Estados Unidos o Europa. Aunque algunos creen que las ONG siempre tienen gran impacto en aliviar la pobreza, actualmente las ONG no pueden hacer cambio real sin incluir a sus beneficiarios en el proceso y colaborar con otras ONG y el gobierno.

Theology

Hofman, Foran, Fiedler, Gonja, Kaster: In my Theology 381 Youth Ministry course we read about evangelization and the process of conversion. We read sociological studies indicating that the fast-growing religious population in the United States is those that identify themselves as unaffiliated. For this course we prepared and presented an evangelization talk seeking to foster interest in Christianity. The talk addressed the fundamental question: Why might someone choose to follow Christ? We watched a video tape of our preaching and reflected on how to improve it. To prepare for the Celebrating Scholarship and Creativity Day we videotaped our talk and wrote a reflection on how to improve it. We also gave this evangelization talk in a local parish to youth and parents as part of a religious education teaching session. This project is designed for Theology 381 class members to share their evangelization talks with the CSB/SJU community. We are calling it a festival of preaching.

Kronzer, Deutz, Lenker, Kelzenberg, Kaster: In my Theology 381 Youth Ministry course we read about evangelization and the process of conversion. We read sociological studies indicating that the fast-growing religious population in the United States is those that identify themselves as unaffiliated. For this course we prepared and presented an evangelization talk seeking to foster interest in Christianity. The talk addressed the fundamental question: Why might someone choose to follow Christ? We watched a video tape of our preaching and reflected on how to improve it. To prepare for the Celebrating Scholarship and Creativity Day we videotaped our talk and wrote a reflection on how to improve it. We also gave this evangelization talk in a local parish to youth and parents as part of a religious education teaching session. This project is designed for Theology 381 class members to share their evangelization talks with the CSB/SJU community. We are calling it a festival of preaching.

Lee, Knapper, LeSage, Skluzacek, Kaster: In my Theology 381 Youth Ministry course we read about evangelization and the process of conversion. We read sociological studies indicating that the fast-growing religious population in the United States is those that identify themselves as unaffiliated. For this course we prepared and presented an evangelization talk seeking to foster interest in Christianity. The talk addressed the fundamental question: Why might someone choose to follow Christ? We watched a video tape of our preaching and reflected on how to improve it. To prepare for the Celebrating Scholarship and Creativity Day we videotaped our talk and wrote a reflection on how to improve it. We also gave this evangelization talk in a local parish to youth and parents as part of a religious education teaching session. This project is designed for Theology 381 class members to share their evangelization talks with the CSB/SJU community. We are calling it a festival of preaching.

Maas, Felix, Kaster, Parker, Kaster: In my Theology 381 Youth Ministry course we read about evangelization and the process of conversion. We read sociological studies indicating that the fast-growing religious population in the United States is those that identify themselves as unaffiliated. For this course we prepared and presented an evangelization talk seeking to foster interest in Christianity. The talk addressed the fundamental question: Why might someone choose to follow Christ? We watched a video tape of our preaching and reflected on how to improve it. To prepare for the Celebrating Scholarship and Creativity Day we videotaped our talk and wrote a reflection on how to improve it. We also gave this evangelization talk in a local parish to youth and parents as part of a religious education teaching session. This project is designed for Theology 381 class members to share their evangelization talks with the CSB/SJU community. We are calling it a festival of preaching.

Moua, Ward, Glass, Scegura: In my Theology 381 Youth Ministry course we read about evangelization and the process of conversion. We read sociological studies indicating that the fast-growing religious population in the United States is those that identify themselves as unaffiliated. For this course we prepared and presented an evangelization talk seeking to foster interest in Christianity. The talk addressed the fundamental question: Why might someone choose to follow Christ? We watched a video tape of our preaching and reflected on how to improve it. To prepare for the Celebrating Scholarship and Creativity Day we videotaped our talk and wrote a reflection on how to improve it. We also gave this evangelization talk in a local parish to youth and parents as part of a religious education teaching session. This project is designed for Theology 381 class members to share their evangelization talks with the CSB/SJU community. We are calling it a festival of preaching.

Origer, Simonton, Vogl, Scegura: In my Theology 381 youth ministry course we read about evangelization and the process of conversion. We read sociological studies indicating that the fast-growing religious population in the United States is those that identify themselves as unaffiliated. For this course we prepared and presented an evangelization talk seeking to foster interest in Christianity. The talk addressed the fundamental question: Why might someone choose to follow Christ? We watched a video tape of our preaching and reflected on how to improve it. To prepare for the Celebrating Scholarship and Creativity Day we videotaped our talk and wrote a reflection on how to improve it. We also gave this evangelization talk in a local parish to youth and parents as part of a religious education teaching session. This project is designed for Theology 381 class members to share their evangelization talks with the CSB/SJU community. We are calling it a festival of preaching.

Vogl, Kaster: I will be giving a talk on conversion as part of my youth ministry course

Natural Sciences Presentations:

Biochemistry

Mordorski: The study of metabolic pathways in bacteria is useful because the enzymes involved in metabolism can potentially be produced in mass quantities to be used for industrial purposes. For example, *Cellulomonas flavigena* (*C. flavigena*) has enzymes that allow it to degrade and metabolize cellulose, a carbohydrate that humans cannot metabolize. Some animals can metabolize cellulose, but only with the help of certain bacteria living in their gut. Cellulose degradation enzymes in *C. flavigena* may be useful because they can break the carbohydrate into simpler sugars which could then be fermented to create biofuel. Two approaches were taken to identify specific genes in *C. flavigena* that code for these enzymes. First, an attempt was made to knock out genes involved in cellulose degradation using labeled transposons. Identified genes could be expressed and purified to test their efficiency in cellulose metabolism for manufacture of biofuel. Second, because the genome of *C. flavigena* has been sequenced, computer based modules were used to identify and characterize genes in *C. flavigena* by comparing them to genes in other bacterial species known for involvement in cellulose metabolism. Although the knock out experiments were unsuccessful, the project served as a stepping stone in the development of a protocol for mutating *C. flavigena*. The computer based modules also provided information about *C. flavigena*'s metabolic capabilities and increased understanding of the pathway by which cellulose is degraded.

Chemistry

Adeagbo: Fish have been found to be a major source of heavy metal contaminants. These heavy metal contaminants have the potential to be found in chicken eggs when chicken feed is enriched with fish and fish oil. This research aims to determine if there is a transfer of heavy metals from fish oil to chicken eggs.

DeSouza: Over expression of Low Molecular Weight Protein Tyrosine Phosphatase (LMW-PTP) is sufficient to transform cells. In fact, in human breast, colon, bladder, and kidney tumor samples it has been shown that there is enhanced expression of LMW-PTP. Pyridoxal 5'-phosphate (PLP) is a known inhibitor and substrate for LMW-PTP. Non-hydrolysable phosphonate acid analogs of PLP were synthesized, screened for their inhibitory properties against LMW-PTP isoform B, and their proposed binding examined by molecular modeling. Structure Activity Relationships (SAR) from this work will be presented.

Gair: $(\text{PMe}_3)_4\text{Ru}(\text{H})\text{OAc}$ has been prepared from $(\text{PPh}_3)_3\text{Ru}(\text{H})\text{OAc}$ via phosphine exchange followed by solvent partitioning between acetonitrile and pentane. Complexes of the type $(\text{PMe}_3)_4\text{Ru}(\text{H})\text{R}$ ($\text{R} = \text{Et}, \text{nPr}, \text{nBu}, \text{iBu}, \text{H}$) have been prepared through reaction with RMgCl in diethyl ether and were found to be moderately stable towards β elimination provided the alkyl group is primary. Treatment with bulkier alkylmagnesium chlorides led instead to the

dihydrido complex $(\text{PMe}_3)_4\text{Ru}(\text{H}_2)$. In some cases, the reaction was complicated by transfer of halide from the Grignard reagent to form $(\text{PMe}_3)_4\text{Ru}(\text{H})\text{Cl}$.

Gould: Amphotericin B, dermostatin A, and roflamycoin are members of the polyene macrolide antibiotic family. The similar ring structures, stereochemistry, and functionalities of the compounds allow for their syntheses to be compared and contrasted. The formation of the ring structure in amphotericin B revolves around the fusion of polyene and polyol fragments, whereas, the formation of the ring in roflamycoin involves an intermolecular phosphonate-Wittig cyclization. The synthesis of the ring in dermostatin A requires cross-metathesis, macro-lactonization, and 1,5-anti aldol coupling. These different approaches to forming similar ring structures are discussed along with the formation of stereochemistry and group attachment. By comparing these syntheses it is clear that some of these synthetic strategies could be employed in the creation of other polyene macrolides, creating a more diverse range of antibacterial compounds.

Grier: At the College of Saint Benedict/Saint John's University, we have received NSF funding to fully revise our foundation laboratory sequence. We have developed a sequence of integrated labs that develop purification, chromatography and synthesis techniques from the fields of organic, inorganic and biochemistry. The third laboratory course in the sequence, "Synthesis," requires the students to learn synthesis techniques including the induced synthesis of proteins in E. Coli (i.e. expression). In this new experiment, students use one of the commercially available plasmids for green (GFP), blue (BFP), banana (pmBFP), or cherry (pmCFP) fluorescent proteins to transform competent JM109 E. Coli cells. After transformation and expression, students analyze their FP solution by a hand-held UV light to detect fluorescence and by SDS-polyacrylamide gel electrophoresis. Details of the experiment and its context within the development of a new foundation synthesis laboratory will be addressed.

Karl: Other literature have developed a procedure for a single step, zinc oxide catalyzed, esterification of acyl chlorides with alcohols and phenols. The end goal of the trial was to develop an effective esterification procedure for introductory chemistry labs. After verification of reaction results, it was discovered that amide synthesis was successful with amines and anilines using the same method. After confirming amide synthesis, the procedure was also used with cyclic anhydrides, replacing the acyl chlorides, and alcohols and amines. Results will be presented at Scholarship and Creativity Day pending final data analysis

Koenig: The CSB/SJU chemistry department has introduced a new curriculum applied to student's enrolled fall 2011 or later. To help accommodate this transition, the development of a laboratory experiment involving the use of reverse-phase chromatography was performed. This new laboratory experiment is now in use in Chemistry 202 Purification Lab II. In this experiment, students are given a mixture of an unknown and an impurity. Students are also given a list of the possible unknowns and a procedure describing proper chromatography column use

and conditions. The students are to separate and identify the unknown through the use of reverse-phase chromatography and spectroscopic techniques.

Kulas: I am researching new methods and treatments which utilize the unique proteinases found in Antarctic Krill (*Euphausia superba*) to treat and prevent diseases of the oral cavity.

Lowder, Lauer: In a 1980 sketch, American comedian Don Novello mocked the value of an undergraduate education by claiming that the amount of information retained by students five years after graduating could be taught in just five minutes — and thus was born the concept of a five-minute university. As students and educators, the very notion that an undergraduate education can be attained in five minutes provokes us. We believe that graduates leave our institutions with a variety of skills in critical thinking, problem solving, and personal development. Whether substantial evidence exists to support these beliefs, however, remains a distinct and pressing issue. In this session, we share results from a qualitative survey of existing assessment practices at CSB/SJU aimed at answering the question, “Are students learning?” Afterward, we invite all students, faculty, and administrators to share their perspectives on the value of a CSB/SJU education and the role of assessment in higher education. Come prepared for a dynamic, thought-provoking, and multi-perspective discussion!

Lucachick: Overexpression of low molecular weight protein tyrosine phosphatase (LMW-PTP) is sufficient to transform normal cells into cancerous cells. Pyridoxal 5' phosphate (PLP) is a known inhibitor to LMW-PTP. However, because PLP is a cofactor for other enzymes, it therefore does not exclusively bind to LMW-PTP. Previous research conducted at CSB/SJU and the University of Minnesota has identified eight analogs of PLP modified at the aldehyde position that displayed better docking scores than PLP toward binding to the active site of LMW-PTP. A two-step synthesis of these compounds was proposed and attempted. A model system coupling salicylic acid to aniline with 1-ethyl-3-(3-dimethylaminopropyl) carbodiimide (EDC) was used to work out peptide bond formation conditions that would be used to synthesize each of the analogs. Phosphorylation conditions were worked out using benzyl alcohol and diethylchlorophosphate. Model compounds for the reactions were isolated in good yields. However, attempts at both EDC coupling and phosphorylation of 4-pyridoxic acid have yet to be successful due to its low organic solubility. Upon successful synthesis, the inhibition of these PLP analogs can be tested using a previously developed in-vitro assay.

Passé: Bioinorganic chemistry is the study of metals, or inorganic materials, being examined in biological systems. It is important for determining the implications of electron-transfer proteins, as well as substrate binding and metal properties. This research explores multicopper oxidase enzymes, specifically trinuclear copper arrangements in the active site, that are used to reduce dioxygen to water; however, the mechanism under which these enzymes reduce dioxygen, is currently not well understood despite all of the research that has been conducted. In order to study these enzymes, the method of biomimetics is used to “mimic” the mechanism of oxygen binding. Studies using ligand scaffolds and copper complexes are used to

model the tricopper oxidase enzyme site with the hopes that the site is correctly mimicked. Currently no ligand has successfully modeled this mechanism. If a correct model is eventually determined, there is hope towards finding a treatment method for Wilson's disease, a disease in which copper accumulates in tissues that leads to liver failure and eventually death.

Peterson: A novel experiment using affinity chromatography to separate a target protein from an unknown protein was developed for freshman in a foundation lab focusing on chromatographic separation techniques. In contrast to published experiments involving purification of a target protein from a complex mixture using an affinity column with a single bait ligand, students are given a binary mixture of a one of 10 different unknown proteins, one of four target proteins, and an affinity gel with a bait ligand for the assigned target. Targets include carbonic anhydrase, conalbumin, biotinylated lactalbumin, and glutamate dehydrogenase, which bind specifically to 4-(aminomethyl)benzenesulfonamide-, 3-aminophenylboronic acid-, and avidin-conjugated Sepharose 4B-Cl and conjugated Cibachron Blue F3G-A. After elution, students analyze proteins in the initial mixture, fall-through, and final elution, and identify both target and unknown using SDS-polyacrylamide gel electrophoresis. Details of the experiment and its context within the new Foundation Purification 2 Laboratory will be addressed.

Semerad: Nanotechnology has emerged as one of the fastest growing research areas due to its potential for improvements in biotechnology, medical imaging, drug delivery and electronic devices. This massive development of nanotechnologies urgently demands thorough toxicological assessments for their safe use. Most nanoparticles enter into the human body through skin or respiratory tract and ultimately reach the blood stream where they interact with living cells, proteins, enzymes, hormones and immune factors. This project is focused on understanding the effects of metal oxide nanoparticles on model enzyme activity.

Sun: Despite numerous potential applications of nanoparticles in biomedical imaging, biosensing and drug delivery, relatively little is known about their interactions with biological systems. Upon entrance into the physiological system, nanoparticles interact with proteins, enzymes, hormones and immune factors. In this project, we use spectroscopic techniques to explore the effects of size and coating types of commercially available metal oxide nanoparticles on the enzymatic activity of acid phosphatase.

Uzelac: We have developed a new method for promoting the carbo-cyclization of 5-hexynoic acid to 3-alkoxy-2-cyclohexenones using Indium (III) Chloride. The goal of this project is to explore new reaction conditions with other Lewis Acid catalysts, such as Bismuth, Zinc, and Iron chlorides. To test the generality of these reaction conditions, we are preparing new starting materials. Propargyl ether and propargyl proline t-butyl ester have been synthesized with 80 percent yield. Once we have determined that the conditions work, we will pursue more highly substituted starting materials. This will allow us to understand the stereo- and regio-chemical properties of this process, furthering our knowledge of the reaction.

NATS

Kerrigan: Polybrominated diphenyl ethers (PBDEs) have been used for many years as flame retardants. The formation of PBDEs to hydroxylated (OH-) PBDEs may occur in: wastewater treatment plants, marine environment and the atmosphere by OH radicals. A recent study has shown that UV degradation of OH-BDEs form brominated dioxins in aqueous solutions. Studies show that PBDDs share the health risks of their chlorinated derivatives. Our hypothesis is that 6-OH-BDE forms dioxins when photolyzed in buffered waters, Mississippi River water and deionized pH-adjusted water. Outdoor photolysis experiments were performed at 45oN latitude during the summer of 2011. Chemical actinometry was used to determine quantum yields. The quantum yield and half-life for 6-OH BDE 90 ranged from 0.0038 to 0.0575 and 12.82 to 50.20 minutes, respectively. The basic solutions had a higher quantum yield and a lower half-life. The formation of dioxin did not appear due to the presence of methanol.

Nursing

Bystrom: In spite of widely available and accessible interventions to prevent the spread of respiratory syncytial virus (RSV), hospital acquired RSV continues to rise among patients at a regional inpatient pediatric hospital. Nosocomial RSV increases financial costs for both patient and hospital, in addition to jeopardizing the patients' health and recovery. RSV can be reduced or minimized when appropriate interventions are consistently used. This project explores the most effective strategies to prevent nosocomial RSV infection in the inpatient hospital setting.

Cabor: Depression is very prevalent in older adults. According to Brown et al. (2003) many older adults are under diagnosed and undertreated by healthcare professionals. Unfortunately, during times of war veterans are at increased risk for development of some type of mental disorder (Allen & Annells, 2009). With the growing numbers in the older adult population, along with veterans who will eventually return home from combat, it is crucial to research this topic. The purpose of this study is to discover what the relationship is between depression scores among veterans ages 65-90 between the years of 2007-2010; also, to find out what the relationship between depression scores among veterans ages 65-90 and living arrangements.

Cronin: A retrospective analysis of clinical records from the St. Cloud VA in order to study the effects of moving from community living to an inpatient setting.

Folstad: Falls are a common and potentially life changing incident. A fall can potentially lead to disability, a loss of independence, morbidity, and mortality. The rate of falls increases with age and in institutional settings. (1) Most falls have

multifactorial causes, including environmental, medical, and physical factors. Minnesota is currently ranked third in the United States for the number of fall-related deaths. Gait and balance impairment are two significant risk factors that increase the risk of falls threefold. Due to the serious concern of falls for elderly people, Wright County along with other providers throughout Minnesota has begun to implement evidence-based falls prevention programs, one of which is A Matter of Balance. A Matter of Balance is an evidenced based falls prevention program that is proven to reduce the fear of falling and increase the activity levels in older adults. It is designed for people age 60 or older who are living in the community and who are concerned about falling, have fallen in the past, have restricted their activity due to their fear of falling, and are interested in improving flexibility, balance, and strength. 2) A Matter of balance of classes are held throughout Wright County and the surrounding areas, however the classes are not as accessible as they could be to seniors. By creating a network of falls prevention and health promotion providers in the Wright County area, as well as a schedule of when and where the program is offered, we can make this program more accessible to seniors.

Gallus: Compliance is a term that is often used — but perhaps just as often misunderstood — within the wound care community. Anne Margaret Williams, author of the article “Issues affecting concordance with leg ulcer care and quality of life” in the July 2010 edition of Nursing Standard, illuminates this misunderstanding. She defines ‘compliance’ as a reflection of “the healthcare professional’s expectation of how the patient should behave in response to his or her illness and/or prescribed treatment” (Williams, 2010, p. 51). This, in turn, places the blame of treatment failure solely with the client. But, what many in the wound care community may overlook are the numerous indirect and often contributory factors to failure. What are these factors? And what is the healthcare team already doing to combat these problems? Could more be done?

For the staff at the St. Cloud Hospital Wound Center (SCHWC), client compliance is a daily, uphill battle. Although six areas of compliance are assessed during each weekly or bi-monthly client appointment, the staff often lacks resources and time to enact interventions that may improve individual compliance problems. By exploring available client adherence data gathered from the SCHWC, as well as analyzing available research on the topic, this project aims to shed light on the various factors involved in patient compliance and wound healing. Information will be shared with the Wound Center’s healthcare team in an attempt to improve this practice problem and positively affect patient compliance and wound healing.

Gustafson: Background: The nursing team on the Minneapolis VA’s spinal cord injury and disorder unit emphasizes care related to wound healing as these patients are more susceptible to pressure ulcers. Uncontrolled blood glucose related to diabetes prolongs healing times for those patients with wounds. Many nurses on this unit are unaware of how to properly treat hypoglycemia in patients which can lead to uncontrolled blood glucose and poor wound healing.

Objective: The aim of this practice improvement project is to identify proper ways to treat hypoglycemia, educate nurses on proper blood glucose control methods, and eventually decrease the incidence of hyperglycemia and poor wound healing in this population.

Methods: Blood glucose readings were tracked for patients with diabetes and wounds. Nurses were also surveyed on their knowledge of properly treating hypoglycemia and their adherence unit protocols for this condition.

Results: The findings from this practice improvement project will eventually lead to proper nursing management of blood glucose levels and improved wound healing for spinal cord injury/disorder patients with wounds.

Knapek, LaGue: Stearns County is the site for many public health clinical experiences for nursing students in the CSB/SJU and SCSU nursing programs. This project is exploration of the current structure of these clinical experiences through the eyes of students, nurses, and faculty. Strengths and weaknesses were identified and recommendations for improvement were made. This practice improvement project was designed to fulfill the requirements for the NRS 379 capstone course.

Lawrence: This presentation will explore the current practices and services used to communicate with non-English speaking patients in the healthcare setting, particularly, in emergency trauma centers. Advantages, disadvantages and the barriers of different interpretation services including in-person interpreters, ad hoc, telephone interpreters, and online/video interpreters will be explored. Further discussion will surround the effectiveness of these methods and recommendations relating to communication techniques currently used to bridge the communication gap. Emphasis will be placed on how the healthcare team, particularly nurses, can better communicate and care for non-English speaking patients.

Lyons, Marks: According to a Sentinel Event Alert published by Joint Commission the numbers of nonpsychiatric patients successfully committing suicide in the hospital setting have been alarmingly increasing. Furthermore, 48 percent of successful suicides occur in a nonpsychiatric unit, especially the emergency department. According to the Center for Disease Control a suicide occurs every 16 minutes accounting for over 33,000 deaths per year and is the third leading cause of death in 15-24 year olds. Data from emergency departments (ED) reveals 75 percent of at-risk age groups have been diagnosed with a mental disorder and nine percent diagnosed with alcohol abuse. It is essential these patients be assessed for their suicide risk during the ED and hospital stay. There is a need for additional research on suicide risk assessments. Current tools in use, according to staff feedback, are difficult to navigate. The purpose of this practice improvement project is to identify best practice as it pertains to suicide risk assessment tools, improve nurse compliance and proper implementation of the assessment tool, and provide education on the importance of obtaining an accurate and thorough assessment of suicide risk.

Solum: The medication dispensing and administration process at a small rural hospital in Minnesota is inconsistent with the other areas of the hospital and poses multiple safety risks for both patients and staff with the current system. Currently, all medications in procedure rooms are made available through lock boxes. By changing to a secured Pyxis system in the procedure rooms, the pharmacy will have a consistent process for the tracking and distribution of medications. The nursing

staff will have a consistent process with Pyxis of computerized utilization rather than a manual paper process of obtaining medications. Most of the medication packaging and vials look identical. For example, Narcan looks exactly the same as Fentanyl and Dilaudid. This is an error waiting to happen, as it requires the nurse to so carefully read the container. The aim of this study is to improve safety of the patient experience by implementing consistent narcotic handling with the secured Pyxis system in the same-day surgery department. Nurses were sampled randomly (n=6). Data about the nurse's satisfaction (3 items), barriers (1 item), and safety (1 item) were obtained with a survey administered out prior to actual implementation of the Pyxis system. A post-survey will be administered to the same nurses a few weeks after the initial "Go-Live" date.

Thomas: Background: Having a child in a hospital or short stay setting is inevitably stressful for all parents. This stress can lead to feelings that the parents have lost control over the care of their child and have given that control completely to the healthcare providers (i.e. nurses). Parents perceive that they are unable or unfit to provide care to their child in these settings, while the nurse believes that the parent needs to participate.

Objective: The aim of this literature review is to examine ways in which nurses can promote and help parents participate in the care of their children while in a hospital or short-stay setting. Also, to determine if there is a discrepancy between the nurses' ideas of how parents should participate and what parents want or need to participate in.

Method: Articles were found in CINAHL and PubMed using the keywords parental participation, pediatric, and pediatric nursing. The articles found were read and data was pooled from them to find common themes.

Results: Results are still in progress.

Torchia: Abstract

Background: There is currently no literature that compares fall risks and fall prevention protocols among community dwelling and institutionalized elderly veterans.

Objective: This research project aims to eliminate this literature gap by utilizing a retrospective descriptive design and a secondary analysis of data from existing health records from the St. Cloud VA Medical Center. This holds future implications for health care practice and the possible reduction of fall risk and total incidence of falls in the elderly. Identifying an effective fall-reduction protocol will allow for enhanced patient care, reduced health care costs and an overall increase in their quality of life.

Method: This study was a repeated measure, retrospective record review of veterans 65 and older with a ICD-9 code for risk for falls. Existing medical record data was extracted electronically from inpatient and outpatient CPRS records at the St. Cloud VAHS. The study population included older veterans (65-89) who receive care in outpatient settings associated with the St. Cloud VAHS and older veterans living in VA nursing homes or assisted living settings. A screening of 1200 records achieved a random sample of 400 veterans receiving/seeking care at the St. Cloud VAHS Jan. 1, 2007-Dec. 31, 2010. At the initial data point, half of the sample (n=200) were

veterans residing in institutionalized settings and the other half (n=200) resided in non-institutional settings in the community (i.e. community-dwelling).

Torchia, Polk, Donner, Pepera, Cronin: Background: The prevalence of CAUTIs (Indwelling Catheter Associated Urinary Tract Infections) at the St. Cloud Hospital has been increasing in the past few years. Current research on product type indicates that silver alloy and antibiotic-impregnated catheters can reduce the risk of CAUTIs; however, the data on long-term use (>1 week) is insignificant and inconclusive. Siliconized catheters have also been shown less likely to cause urethral side effects in men, but more research is needed to prove correlation.

Objective: The aim of this study was to examine the relationship between product type and incidence of CAUTIs. The CAUTI Task Force has identified the type of catheter product (e.g. latex vs. silicone, hydrogel coated vs. non-coated, and silver vs. antimicrobial, as well as closed vs. open systems) as a possible source of infection.

Roisum: Hand hygiene in an acute care setting is a key factor in preventing the spread of infectious organisms. In order to meet Joint Commission accreditation, hospitals and other organizations must meet specific criterion in relation to hand hygiene and other topics. At a rural hospital in Minnesota, the Joint Commission has requested that information be collected to complete a “Failure Mode and Effect Analysis” FMEA regarding their hospital staff’s adherence to hand hygiene protocols and recommendations. The aim of this practice improvement project was to examine “failures” of hand hygiene at the rural hospital and offer suggestions based on research to reduce these failures, thus increasing hand hygiene adherence. Hospital employees were observed randomly and both patients and hospital staff were surveyed regarding hand hygiene adherence. The data was then compiled to begin identifying “failures” of hand hygiene adherence. This data was then used to begin the FMEA project regarding hand hygiene.

Sandwick, Smith, Nierenhausen, Whitacre: The Saint Cloud Hospital (SCH) methods of shift-to-shift report are currently not standardized. Each unit utilizes a different method of transferring essential patient information to the oncoming staff to provide safe and quality nursing care. This presentation investigates if SCH patients have improved patient-centered care when the nursing staff utilizes bedside report instead of other non-standardized forms of shift report during their hospital stay. This presentation outlines the benefits, methods of the implementation, and barriers of bedside report on patient-centered care. Additionally, a survey was administered to find out how the current shift report is used by RNs on the Medical 2 unit at SCH.

Results: Results will be screened based on adherence to fall protocols and incidence of falls in an inpatient vs. community setting.

Stodola, Guimond, Piao: A pressure ulcer is an inflammation, sore, or ulcer in the skin over a bony prominence. It results from ischemic hypoxia of the tissues caused by prolonged pressure on them. One large Minneapolis urban hospital recently

conducted a survey of nurses on various units regarding knowledge of pressure ulcer. Sixty-three percent of nurses surveyed were unable to identify the root cause of all pressure ulcers, lack of oxygen. With this being the foundation of pressure ulcer prevention, the problem caught attention from nurse managers and nurse educators. This issue must be addressed in order to improve pressure ulcer outcomes for patients at this urban hospital. Evidence shows that coaching has a long-term positive effect to improve nurses' knowledge. The goal for this practice improvement project is to explore evidence related to the effectiveness of coaching and potentially present this methodology as a means to improve nurses' knowledge, skills, and attitudes towards ulcer prevention.

Tikalsky, Martin, Proski, Nolan, Sea, Peterson: Research Question: In a population of inpatient acute care mental health clients, what components of the recovery model could be implemented (considering patient preference and patient centered care interventions) to enhance individualized therapy outcomes and recovery in a one-year period?

Based on evidenced based research and input from mentally ill patients, we will answer the above question.

Willson: At a small rural hospital the patient population ages range from birth to older adult. The majority of the patients cared for are older adults. The registered nurses rarely care for the pediatric population and lack the knowledge and understanding of cardiovascular pediatric assessments from ages ranging from birth to 36 months. In a survey, 100 percent of the hospital's nurses reported that education on pediatric physical assessments would be beneficial, while 50 percent of the nurses reported comfort or slight lacking with pediatric cardiovascular assessments. This project aims to educate the registered nurses during a nurse practice meeting on the concepts of pediatric cardiovascular assessment. The education intervention will be delivered with a power point presentation. After the education intervention, a survey will be administered to the registered nurses to both evaluate the effectiveness of the presentation and demonstrate the improved level of knowledge of pediatric cardiovascular assessments.

Nutrition

Sholing, Ganong: Introduction: The "got milk?" campaign is one of the most recognized marketing campaigns promoting the consumption and health benefits of pasteurized milk. But what if the health benefits are greater when milk is not pasteurized? A rising interest in raw milk has raised questions about the health benefits of consuming raw milk over pasteurized milk. Milk is a complex fluid that contains enzymes, probiotics, whey proteins, and many other components that, when pasteurized, become altered or damaged. Studies of milk raw consumption have supported health benefit claims such as reduced incidences of: asthma, atopic disease, allergies, digestive disorders, and more.

Purpose: This study was designed to evaluate health claims that consuming raw milk has better outcomes for growth and fertility rates than pasteurized milk.

Methods: Eighteen weanling mice were randomly assigned to one of two groups: raw milk or pasteurized milk. Both milks were whole and organic. Mice were grouped into breeding trios and given a fresh supply of milk every four hours between 7 a.m. and 11 p.m. for 55 days. Milk was the primary source of food with access to unlimited water and timothy hay, which provided a source of fiber. Milk consumption was tracked at each feeding by measuring the amount of milk that was provided and the amount of milk that was left from the previous feeding. The Institutional Animal Care and Use Committee approved this study.

Results: On average, the mice in the raw milk group consumed less milk but gained more weight; however, weight gain differences between groups was not statistically significant. Data were analyzed using a two-sample t-test (raw: initial weight 18.59g — final weight 37.32g; pasteurized: initial weight 18.20g — final weight 38.37g, P-value of 0.904). The difference in consumption, however, was statistically significant (raw average consumption: 29.46mL; pasteurized average consumption: 34.01mL, two-sample t-test, P-value of 0.021). Volume of consumption compared to mean weight gain had a positive trend, but the difference was not significant. A paired t-test was conducted with a P-value of 0.056. The raw milk group gained 0.105 grams per mL of milk consumed; the pasteurized milk group gained 0.086 grams per mL of milk consumed.

Conclusion: In conclusion, there was a trend toward greater growth efficiency with raw milk. There was no statistical difference between the groups with regard to birth rates or pup mortality rates.

Physics

Evich: Every night we experience the celestial phenomenon of meteors falling to Earth. Meteors are chunks of space debris composed of mostly rock or metal, which light up the night sky and are more popularly known as “shooting stars.” I used an all-sky camera to observe these meteors easily. The all-sky camera is a low light-sensitive camera with a fish-eye lens so it can observe the whole night sky. If a meteor occurs, the ASGARD motion detection program will save a video of the event along with the stacked frames. I calibrated the images to get a better estimate of the brightness of the meteor, by using a series of programs. Each image is calibrated by using the known stars in the cameras field of view. The calibration of an image is the difference between the brightness of the image and the brightness of known stars that are in the image. Each image is different and each image deserves its own calibration. Since each image gets its own calibration there is a distribution of calibrations for all the events. The median of the calibrations was determined, with some variation from event to event due to differences in observation quality such as cloud cover or a bright moon.

Wildenborg: The basic principles of thermoacoustic refrigeration were explored by developing and testing a tabletop thermoacoustic refrigerator made from readily available parts. A standing wave was generated within a PVC-pipe by a loudspeaker. This created areas of pressure difference within the resonator. Gas particles traveled across an internal divider while drawing energy from the sound wave to compress and decompress. These pressure differences created a heat cycle that resulted in hot

and cold regions within the resonator. In this experiment the position of the divider was varied and the effect this had on the temperature difference between the regions was observed. A temperature difference that peaked at 26 °F was observed. This occurred when the region closest to the end of the closed-end pipe was 4 cm in length.

Social Sciences Presentations:

Entrepreneurship

Stotz, LeGarde, Scholz, Denike, Niyongabo, Pham, Kong, Jaeger: The Eric Rego BIG Idea Competition is an annual competition open to all CSB/SJU students. Those who participate have a dream to make the world, or things in it, better. Individuals or teams can apply by submitting a venture idea description and presenting the idea in a 90-second “elevator pitch.” Sign up at www.csbsju.edu/cfe and click on “current events.”

Wildenborg, Johnson, Toninato, Paul, Wang, Zhao, Hamburger, Harren: The Eric Rego BIG Idea Competition is an annual competition open to all CSB/SJU students. Those who participate have a dream to make the world, or things in it, better. Individuals or teams can apply by submitting a venture idea description and presenting the idea in a 90-second “elevator pitch.” Sign up at www.csbsju.edu/cfe and click on “current events.”

Wojciechowski, Vargason, Husby, Mackey, Anderson, Mueller, Landwehr: The Eric Rego BIG Idea Competition is an annual competition open to all CSB/SJU students. Those who participate have a dream to make the world, or things in it, better. Individuals or teams can apply by submitting a venture idea description and presenting the idea in a 90-second “elevator pitch.” Sign up at www.csbsju.edu/cfe and click on “current events.”

Exercise Science and Sport Study

Schoenecker, Weyrauch, Von Arb, Virnig, Stephens: The aim of this experiment is to compare the effects of being fed or fasted on high-intensity treadmill exercise. Participants of the study will complete two trials of high-intensity treadmill running to exhaustion, once after consuming a standardized meal, and once after fasting for at least eight hours. Measurements include time to exhaustion, blood lactate and blood glucose before and after exercise, rate of perceived exertion (RPE), and heart rate. We expect to find shorter time to exhaustion, lower blood lactate, and higher RPE in the fasted trial. We also expect to find no differences in blood glucose and heart rate between the fed and fasted trials.

Political Science

Beaty: This will be a presentation about my experiences working at the Institute for Women's Leadership at the College of Saint Benedict, the experiences I've had, the way my viewpoint has changed and my ongoing research being done through my position.

Wittmeyer: Large-scale farmland acquisitions in Africa — widely denoted as “land grabbing” — have increased dramatically over the past few years. Governments negotiating these leases have thus far transferred over 50 million hectares of land to foreign investors by the end of 2011. Alarmed by the implications of food and bio-fuel crops being grown and exported from food-insecure states, international media and activist organizations have used “neo-colonialism” to describe the wave of investments — connoting exploitation by foreign powers and corporate interests. Indeed, the prospects for enhancing economic development and protecting the rights and access of peasants to land, is dim.

This contribution explores “land grabbing” within the context of broader neoliberal reforms adopted by African ruling elites and seeks to explain why African states choose these policies and how autonomous African policymakers are (from the influence of the IMF, World Bank, and aid donors) in the 21st century. My analysis focuses specifically on the case of Mozambique. As neoliberal policies are no longer overtly imposed from international financial institutions or donors, ruling elites clearly pursue them, often for political ends. Using data from aid flows and tracing economic and political reforms in Mozambique, I seek to test Bayart’s approach of “extraversion,” which asserts that African governments strategically use particular policies to maintain the flow of external resources and subsequently consolidate their power. Therefore, we cannot simply explain “land grabbing” or neoliberal reform solely in relation to external influences and foreign interests but instead by looking at how African elites actively play a role in dependency and the marginalization of their own people.

Interdisciplinary Presentations:

Office of Academic Review and Curricular Advancement

Lowder, Lauer: In a 1980 sketch, American comedian Don Novello mocked the value of an undergraduate education by claiming that the amount of information retained by students five years after graduating could be taught in just five minutes — and thus was born the concept of a five-minute university. As students and educators, the very notion that an undergraduate education can be attained in five minutes provokes us. We believe that graduates leave our institutions with a variety of skills in critical thinking, problem solving, and personal development. Whether substantial evidence exists to support these beliefs, however, remains a distinct and pressing issue. In this session, we share results from a qualitative survey of existing assessment practices at CSB/SJU aimed at answering the question, “Are students learning?” Afterward, we invite all students, faculty, and administrators to share their perspectives on the value of a CSB/SJU education and the role of assessment in higher education. Come prepared for a dynamic, thought-provoking, and multi-perspective discussion!

This project is designed to investigate the steps that are being taken within Minnesota to develop a transition from traditional **fossil fuel** technologies to more sustainable **clean energy** technologies.... How government officials blended Chinese and Western culture and **technology**... The management of **aquatic invasive species**... How **sustainability** can be addressed as a way to better manage the **Congo Basin Forests**... The effect a country's **piracy** rate has on the legitimate sale of **music**... This project focuses on the effects of **climate change** on local **fish populations** in the Great Lakes... The purpose of this study was to collect preliminary data on **whale behavior** while animals were associated with boat-approaches... The project concerns the design and construction of a **robotic xylophone**... **The accuracy of facial recognition**... The objective of this study was to examine **perceived hydration** status versus actual hydration status... The purpose of this study was to determine whether high fruit and vegetable intake is inversely associated with serum **CRP levels** in college-aged subjects... How the UN troops are engaged in **peace keeping**....