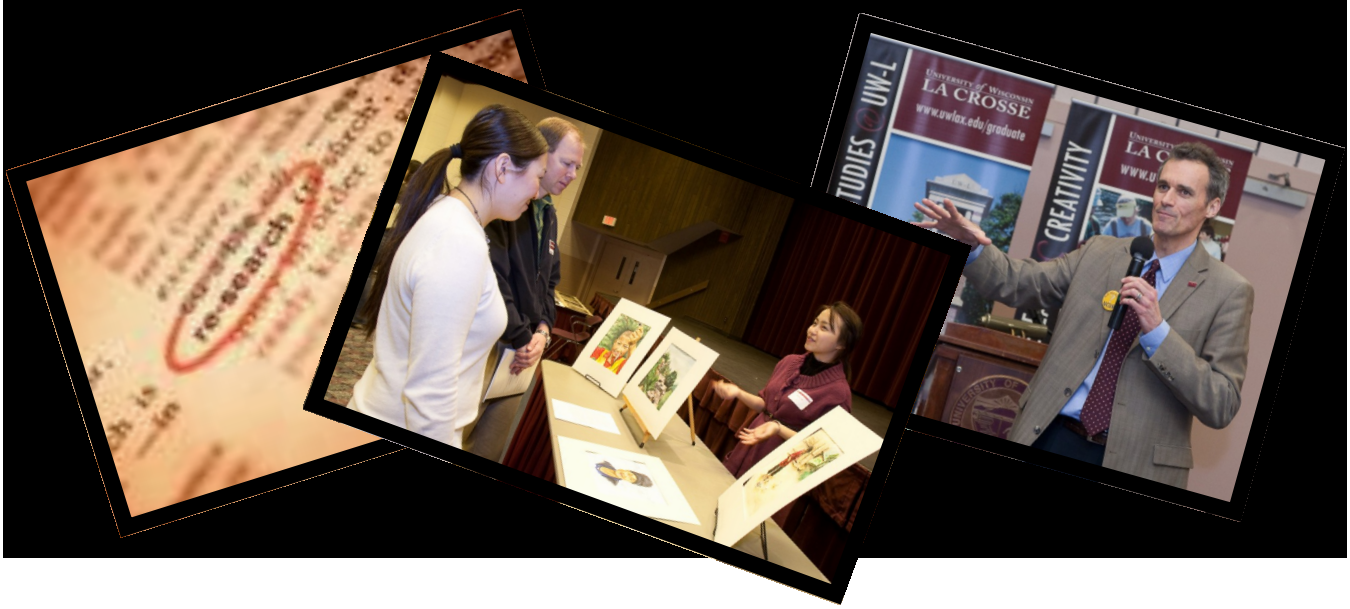
Celebration of Student Research & Creativity



University of Wisconsin
LA CROSSE

13th Annual Abstract Booklet 2010

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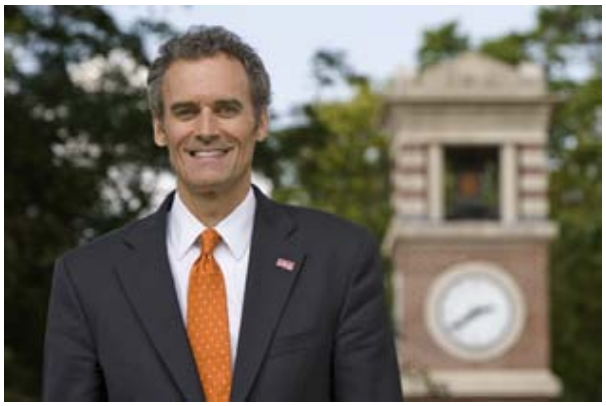
April 9, 2010
Cartwright Center

8:30 a.m.-1:30 p.m.

Dear Friends:



We're pleased that the University of Wisconsin-La Crosse is holding its Thirteenth Annual Celebration of Student Research and Creativity on April 9, 2010. UW-La Crosse takes great pride in providing its undergraduate and graduate students opportunities to engage in faculty mentored research and creativity in diverse academic disciplines. Celebration is a time to publicly acknowledge and congratulate all student scholars and their faculty mentors for their scholarly contributions. As a Teacher-Scholar, I know full well that every abstract in this publication represents serious commitment and hard work on the part of its authors, and they deserve our appreciation for their willingness to share with the UW-La Crosse community.

While research methodology may differ among disciplines; for example designing and conducting experiments; doing computational simulations; pursuing fieldwork and/or creating a work of art, our students are the direct beneficiaries of these distinct learning opportunities through the pursuit of scholarly activities under the guidance of their mentors. UW-L is committed to all forms of research methodologies and is pleased to provide student grants to a number of scholars each year. It is also worth noting that our student grants have been continually supported by the Academic Initiative program for which students pay a differential tuition. The recipients of these grants in 2009 are acknowledged in this publication, and we congratulate all of them.

I am equally pleased to express my deep appreciation to the members of the Undergraduate Research Committee and the Graduate Council for their assistance in planning this publication and the magnificent event. This year, the UW-L Foundation provided additional funds for the Recognition and Award ceremony which is gratefully acknowledged.

You may recall that we were the proud host of the National Conference on Undergraduate Research (NCUR) at UW-L almost a year ago which was, in part, due to our longstanding commitment to student engagement in research and academic excellence. This year, 37 undergraduate students will be representing UW-L at the 2010 National Conference on Undergraduate Research in Missoula, Montana joined by over 300 students from our sister institutions in the UW System and beyond on two charter flights just for NCUR.

In closing, let me congratulate the student scholars and faculty mentors once again for their hard work and dedication leading to the projects included in the 2010 Celebration of Student Research and Creativity.

Best wishes,

Joe Gow

Joe Gow
Chancellor

SCHEDULE OF ORAL PRESENTATIONS

	Room 330	Room 331	Room 332
8:30 I 8:50	**UR.2 Ben Gilbertson** English The Consequences When Nature and Society Collide and the Incompleteness of a Social-Self in William Shakespeare's *The Tempest*	**UR.19 Adam Bonikowske** History The Power of Place: Concepts of Space and Association in La Crosse History and Environment	**GRAD.1 Andrew Pustina** Exercise and Sports Science Validation of an Optical Encoder and Power Prediction Equations While Performing A Smith Machine Jump Squat on a Force Plate
8:55 I 9:15	**UR.15 Josef Simon** Communication Studies Transformational Leadership and Outdoor Recreation	**UR.17 Rourke Decker and Kati Fanning** Modern Languages A Tale of Two Campuses: Are Students at Goethe University Frankfurt am Main Truly More Passionate and Socially Engaged than University of Wisconsin-La Crosse Students?	**GRAD.2 Matthew Rogatzki** Exercise and Sports Science Blood Ammonium and Lactate Levels During Squat Exercise
9:20 I 9:40	**UR.6 Katelynn Williams** French, Economics The French Response to the United States' Financial Crisis: An Economic and Social Perspective	**UR.8 Valerie Zander** Microbiology CD43 Expression in Lung Cancer	**GRAD.3 Teri Passow** Student Affairs Administration A Qualitative Study of Students' Perceptions of the Transfer Support Systems Offered at Two- and Four-Year Institutions
9:45 I 10:05	**UR.5 Shannon Kordus** Biology Analyzing Meiosis in the *CDC7* and *DBF4* Mutant SK-1 Yeast	**UR.9 Sarah Kroth** Theatre Arts A Ghost on Page, Stage, and Screen: A Characterization Comparative Analysis of *The Phantom of the Opera*	**GRAD.4 Maggie Lee McHugh** Master of Education-Professional Development Connecting Hmong Culture and Education through Children's Literature

	Room 330	Room 331	Room 332
10:10 I 10:30	**UR.10 Mackenzie Deese** English Women's Roles and Star Personas in the Films of Frank Capra	**UR.18 Sarah Schreiner** Chemistry Understanding How Hybridization is Altered Near Surfaces	**UR.7 Pa Houa Vang and Yang Cha Thao** Education Researching Hmong Culture
10:35 I 10:55	**UR.20 Erik Kahl** Modern Languages Building Bridges in Bunche	**UR.12 Kyra Kaercher** Sociology/Archaeology Trade or Migration? A Study of Ceramics at Tell Qarqur, Syria	**UR.4 Elena Bantle** Political Science A Study in Park Development: Creating Patagonia National Park
11:00 I 11:20	**UR.3 Jacob Wood** Sociology/Archaeology Stricture and Solidarity: Agency and Community Development in Huancarani, Bolivia	**UR.13 Kyra Kaercher** Sociology/Archaeology Using Anomalous Tempered Ceramics to Illustrate Trade	**UR.21 Michael Hemmer** Mathematics A Robustness Study of N-Mixture Models in Estimating Animal Population Size
11:25 I 11:45	**UR.11 Aaron Moritz** English "Extreme Gusts Will Blow Out Fire and All": A Sociological Examination of Transformation in the *Taming of the Shrew*	**UR.1 Kirsten Kranz** Psychology The Relationship Between Empowerment Care and Quality of Life Among Assisted Living	**UR.22 Jason Emmons** Psychology The Relation Between Psychological Gender, Sex, Sexual Orientation, and Social & Self-Acceptance
11:50 I 12:10	**UR.14 Ryan Clark** Women's, Gender, and Sexuality Studies Problematizing LGBT Inclusion in Study Abroad Programs	**UR.16 Nicholas Knobloch** English "But Doth Suffer a Sea-Change Into Something Rich and Strange": *The Tempest* Subtext Within *Grimus*	

UNDERGRADUATE STUDENT ABSTRACTS

UNDERGRADUATE POSTER PRESENTATION ABSTRACTS

Poster Session A
Valhalla Hall: 9:00am-10:45am

U.1 Perceptions of the Death Penalty: The Effects of Race and Type of Execution

Samantha Solveson
Advisor: Kimberly Vogt, Sociology

Statistics from the United States Department of Justice (2009), reveal that over the past five years, 251 prisoners have been executed on death row. In addition, almost half of those executions (122) were in the state of Texas alone. The death penalty is implemented as a punishment for capital murder in 36 states; the other 14 utilize life imprisonment (U.S. Department of Justice, 2009). However, multiple variables have been discovered that affect perceptions of capital punishment. Evidence of racism in the system has been repeatedly discovered, and that is minorities are overrepresented on death row (Baker, Lambert, & Jenkins, 2005). In addition, the form of execution has evolved to keep up with society's need to make death more humane (Trop v. Dulles, 1958). This study examined differences among support for the death penalty regarding three different variables: state in which the individual lives (Wisconsin vs. Texas), cruelty of method of execution used (Hanging vs. Lethal Injection), and race of the accused (African American vs. Caucasian). It was predicted that the less cruel form (lethal injection) would increase support for the sentence of death as compared to hanging. It was predicted that support would be higher when blacks are sentenced to death as compared to whites. Finally, it was predicted that people from Texas (death penalty is legal) would be more likely to support the sentence of death than those from Wisconsin (death penalty is illegal).

U.2 Comparison of Kinematics and Kinetics During Drop and Drop Jump Performance

Ryan Schouweiler and Karina Hess
Advisor: Thomas Kernozek, Health Professions

Non contact anterior cruciate ligament (ACL) injury occurs more frequently in females during activities such as landing and jumping. Our purpose was to determine differences in initial contact kinematics, maximum kinematics, and maximum kinetics of landing performance in subjects during drop versus drop jump conditions. The subjects, 40 healthy seventh grade females ages 12-13, had retro-reflective markers placed on their lower extremities and pelvis to measure movement performance. Two landing conditions were performed in a randomized order from a height of 40cm. One landing condition was to drop from a hang bar where subjects were instructed to land typically, whereas the other landing condition was to drop from a hang bar, land and perform a maximal jump after the initial landing. Subjects landed on two force plates during all performance trials. Paired T-tests compared the two landing conditions to examine differences between the kinematic and kinetic variables of the right lower limb during the contact phase of the landing. Upon initial contact the subjects' ankles were more plantar flexed, while their knees and hips were less flexed during the drop condition ($p < 0.05$). Also upon initial contact during the drop condition, the subjects experienced a greater vertical ground reaction force but a reduced knee abduction moment ($p < 0.05$). Due to the more erect anatomical position of subjects during the drop condition, a greater peak vertical ground reaction force and greater knee abduction moment appears to be produced. Greater knee abduction moment and greater peak vertical ground reaction force have been related to a greater chance for non-contact ACL injury. The drop jump condition appears to reduce vertical ground reaction forces by having a greater ankle, knee, and hip flexion angle in landing.

U.3 The Relationship between Music Tempo and Pacing in Strength Training

Jennifer Rolfing
Advisor: Ryan McKelley, Psychology

This study examined the relationship between strength training repetition pacing and music tempo. A total of 48 students at the University of Wisconsin-La Crosse possessing memberships to the strength center were asked to do one set of 15 repetitions on the leg press machine while listening to one of two music conditions. Participants were randomly assigned to either fast (135 bpm) or slow (65 bpm) tempo music and videotaped during 15 repetitions of the leg press. After completing the set, participants were asked to complete questionnaires on demographics, exercise habits, and music preference. Analysis of data showed that people prefer fast tempo music while strength training, but the tempo of music does not influence repetition pacing. Additionally, a significant correlation was found between the

strength training goal of increasing power and slower pacing. Results do not support previous research showing a relationship between music tempo and pacing in cardiovascular exercises.

U.4 Biodiversity's Affect on Modeling the West Nile Virus

Katherine Ott
Advisor: James Peirce, Mathematics

We use techniques of applied mathematics to study the spread of the reemerging West Nile Virus. In the past ten years, models for West Nile have focused on single hosts living in a homogeneous environment. After studying West Nile's disease transmission, a new question arises. How does bird diversity and composition in a given environment affect the severity of the spread of the disease? In disease modeling, equations are determined by underlying biological assumptions, such as demographic rates and lifehistory features, which influence the model's predictions. To capture environment diversity, we create a standard epidemiological model for mosquito and bird populations that incorporates multiple bird hosts and their competency as carriers of West Nile. The spread of the disease is described by the basic reproduction number R0. The value of R0 is the number of new infections created by introducing a single infected individual to an entirely susceptible population. If a disease has a value of R0 less than one, transmission cannot be sustained in the population and the disease will eventually die out. However, if R0 exceeds one, without sufficient control methods, the disease will spread exponentially throughout the population. We use this value to predict the disease dynamics of four different environments: agriculture, urban, wetlands and forestland in Wisconsin. When studying the different bird species, we focus on the competent hosts, keeping in mind that the best way to minimize R0 is to have a diverse environment with extreme heterogeneity. Analytic results and numerical simulations support the observation that there is a lower incidence of disease in areas with more host diversity, known as the dilution effect. Our model supports this biological observation. Utilizing the results of our work will lead to control methods that incorporate environmental diversity.

U.5 Body Composition Survey and DEXA Scan

Lauren Halverson, Claire Mullarney, Daniel Knorr, Brady Czyscon, Anthony Thompson, and Jessie Dengsavang
Advisor: Richard Mikat, Exercise and Sports Science

Some methods of body composition analysis have questionable reliability and validity, may be difficult and/or costly to perform, may be poorly tolerated by participants, and may be excessively time consuming. PURPOSE: The purpose of this study was to validate a new body composition questionnaire using criterion results from Dual Energy X-ray Absorbtiometry (DEXA). A sample of 29 adults (15 male and 14 female) between the ages of 19 and 26 years of age volunteered as participants. Each was evaluated with DEXA and a web-based questionnaire for percent body fat (PF). Stepwise regression analysis was performed between criterion and prediction BF values. The intraclass reliability of the questionnaire was established by comparing same-day test and re-test BF results. All data were analyzed with SPSS 16.0. Stepwise regression analysis results for men and women are presented in table 1. The intraclass reliability coefficient for same-day test-retest BF results from the questionnaire was .998. Table 1. Comparisons between predicted and criterion measures of body composition. Percent fatRR2Adjusted R2SEE Men.725.525.4864.77% Women.914.836.7873.15% The results indicate that the questionnaire had moderate to excellent measures of validity when compared with DEXA. Moreover, the questionnaire was quick (about five minutes per subject), reliable, easily performed, and well tolerated by participants. Narrative: The students working on the project are Exercise Sport Science Fitness lead Dr. Richard Mikat. Our goal of this project is to formulate a questionnaire that will accurately compare body composition to a DEXA scan. Once the measurements are read, we will use the regression analysis to compare the results. Hopefully, if the survey is found useful, this will be the new form of data collection for body composition as it is a more time efficient method.

U.6 Comparison of Total Radiation Exposure from 82Rb Verses 99mTc-sestamibi MPI

Amy Beam
Collaborators: Amy Bell and Randell Kruger; St. Joseph's Hospital, Marshfield, WI
Advisor: Carlyn Johnson, Nuclear Medicine Technology, St. Joseph's Hospital, Marshfield, WI

The intent of this study was to retrospectively determine whether there was a major difference in patient radiation exposure received during a myocardial perfusion imaging (MPI) scan, based on the imaging protocol selected. Saint Joseph's Hospital has two MPI protocols for patients with a body mass index (BMI) greater than 35 kg/m2. The first

protocol utilizes 99mTc-Sestamibi and a SPECT/CT (Siemens Symbia T6) camera, while the second protocol employs 82Rb and a PET/CT (Philips Gemini GXL) system. Thirty-eight patients, with BMI's ranging from 24 kg/ m2 to 69 kg/ m2 who had undergone both a 82Rb MPI scan and a 99mTc-Sestamibi MPI scan were evaluated. Whole body exposure from 82Rb rest and stress doses (approximately 40 mCi for each dose) were summed and recorded according to the patient's BMI. The same method was used to sum the 99mTc-Sestamibi rest and stress doses (approximately a 16 mCi rest dose and a 40 mCi stress dose). The CT radiation exposure was added to the 82Rb and 99mTc-Sestamibi doses, respectively, and the total radiation exposure of each procedure was compared. Results: This study found that a 82Rb MPI scan gave a 9% higher whole-body dose than a 99mTc-Sestamibi MPI scan for patients with a BMI less than 48 kg/m2. For patients with a BMI of 48 kg/m2 or larger, 99mTc-Sestamibi MPI scan resulted in an average 4% higher total radiation exposure. The total radiation exposure is greater for 82Rb than 99mTc-Sestamibi myocardial perfusion imaging for patients with BMI's less than 48 kg/m2, however, 99mTc-Sestamibi delivers a higher exposure for patients with BMI's equal to or greater than 48 kg/m2 due to an increased CT dose during SPECT/CT imaging.

U.7 Correlation of Rubidium-82 and Echocardiogram Ejection Fraction Results

Vana Hansch
Advisor: Carlyn Johnson, Nuclear Medicine Technology, St. Joseph's Hospital, Marshfield, WI

Rubidium-82 myocardial perfusion imaging (MPI) studies and echocardiograms have both been used to assess the function of the heart, specifically the left ventricle. Both studies can provide a measurement of the capacity at which the heart is pumping or the percent ejection fraction. Typically, an ejection fraction greater than 55% is considered normal. The purpose of this study is to determine if the ejection fraction identified on Rubidium-82 MPI studies correlates with the ejection fraction of echocardiograms. The ejection fraction results from twenty patients who had undergone both a Rubidium-82 MPI study and an echocardiogram were evaluated. The cardiologists' dictations of the echocardiograms were compared with the nuclear medicine physicians' dictations of the Rubidium-82 MPI studies. Fourteen patients showed an ejection fraction that was significantly higher ($\geq$ 10%) on the Rubidium -82 MPI rest images than echocardiograms. Three patients displayed a lower (< 10%) Rubidium-82 MPI rest ejection fraction compared to the echocardiograms and three studies revealed an echocardiogram ejection fraction between those of the rest and stress Rubidium-82 MPI images. The results indicate that there is a correlation between the ejection fraction of Rubidium-82 myocardial perfusion imaging studies and echocardiograms: Rubidium-82 MPI studies typically show a higher ejection fraction than echocardiograms. Continued research on patients who have undergone both studies is ongoing and should strengthen the test results.

U.8 Decrease PET/CT Cancellation Rate through Patient and Staff Education

Melissa Genz
Collaborators: Aileen Carey, Jennifer Baralli, and Stewart Spies; Northwestern Memorial Hospital, Chicago, IL
Advisor: Nancy McDonald, Nuclear Medicine Technology, Northwestern Memorial Hospital, Chicago, IL

Since September 2007, our PET facility has been averaging 62 cancellations per month. Nearly 40% of the cancelled procedures were within 24 hours of the scheduled appointment. The aim of this study was to decrease the number of unnecessary cancellations of PET/CT procedures by improving patient and staff education resulting in more efficient patient scheduling. PET/CT procedure cancellations within 24 hours of the scheduled appointment were reviewed for the past 15 months. Data was analyzed and separated into inpatient and outpatient categories. To increase patient awareness of the preparation needed for the procedure and as a reminder of the scheduled appointment, a confirmation call was placed to outpatients two days prior to the study to allow for ample time to cancel. To increase staff awareness of the procedure, an informative email was sent to all nurse managers to increase staff and inpatient awareness of the preparation needed for the PET/CT procedure. Cancellation rates were reviewed for the period following the changes in protocol. Prior to implementation of the confirmation calls and staff education, the PET/CT center had an inpatient cancellation rate of 54% and an outpatient cancellation rate of 10%. After staff education, inpatient cancellation rates were decreased to 10%. Initiation of phone call to outpatients two days prior to appointment did not have a significant difference in cancellation rate. Additional staff education proved to be affective in decreasing inpatient PET/CT cancellations. To initiate a more effective program to decrease outpatient cancellations, an informative brochure was created and mailed to outpatients.

U.9 Evaluation of PET/CT Alignment Using Two Semi-Automated Methods

Sarah Natvig
Collaborators: Nicole Bloms and Randell Kruger; St. Joseph's Hospital, Marshfield, WI
Advisor: Carlyn Johnson, Nuclear Medicine Technology, St. Joseph's Hospital, Marshfield, WI

Proper PET/CT fusion is crucial to avoid misregistration between the two modalities that may result in poor patient treatment planning and scanner performance. Hoping to minimize these errors, two semi-automated methods, manual and maximum pixel, were created using IDL (Interactive Data Language) programs. Our objective was to evaluate PET/CT alignment using these two methods and to assess this alignment for varying clinical conditions. This study utilized a NEMA Body Phantom (Data Spectrum Corp.) that contains six spheres within a torso cavity. CT contrast solution, diluted to a ratio of 1:10, and adequate F-18-FDG was added to the spheres so that there was a sphere to background ratio of 15:1, 10:1 and 5:1 for each of three separate acquisitions. Sufficient F-18-FDG was added to the torso cavity to maintain an activity of 0.14μCi/mL. For each acquisition, five reconstruction images were evaluated using the following PET/CT fusion levels: 0/100, 25/75, 50/50, 75/25, and 100/0. A total of fifteen images were acquired on a Philips Gemini PET/CT system and analyzed using both IDL methods. The 10:1 sphere to background ratio, representing a typical clinical level, was superior when evaluating the 100/0 fusion data. We found that of the two IDL programs evaluated, the maximum pixel method resulted in a higher level of registration. Our evaluation found that the 0/100 followed by the 25/75 and 100/0 PET/CT fusion levels most accurately represented the diameter of the spheres. The 10:1 ratio is the best choice. The 25/75 PET/CT blend gave the most accurate fusion of the data. Our findings will assist in quantifying clinical uncertainties and establishing reproducible QA procedures addressing the degree of misalignment.

U.10 Method for Testing Radiochemical Purity of 111In-pentetreotide

Karlie Gottwald, Alyssa Guzek and Brooke Wilkins
Advisor: Elton Mosman, Nuclear Medicine Technology, Mayo Clinic, Rochester, WI

The SepPak® method for testing 111In-pentetreotide radiochemical purity (RCP) involves expensive supplies, excess radiation exposure, and is time consuming. Although there is a published ITLC-SG method, the production of ITLC-SG strips has been discontinued. The purpose of this study was to develop an alternative method using ITLC-SA paper. Both ITLC-SA and ITLC-SG alternatives were compared with the standard SepPak® method. Both ITLC methods consisted of 0.7 x 6.0 cm sized chromatography strips, 0.9% NaCl as the mobile phase, and 0.05 M DTPA as the chelator. Kits were reconstituted according to the package insert which requires a RCP minimum of 90%. 111InCl was added to create trials with RCP values below the accepted value of 90% purity in order to evaluate the sensitivity of the alternative methods. Assessment of the two alternative methods consisted of estimating their test-retest variability and their agreement of 90% purity with the standard method. A total of 6 experiments were conducted with 5 replications resulting in 30 individual trials of each alternative method. The test-retest variability of the ITLC-SA method was 0.84 and had perfect agreement (100%) with the SepPak® method in determining if a kit was above or below the acceptable purity level. For the ITLC-SG, however, the test-retest variability was 2.95 and the agreement was only 83%. All of the disagreement for the ITLC-SG method was a result of rejecting samples that were deemed acceptable by the SepPak® method. ITLC-SA chromatography has smaller test-retest variability in comparison to ITLC-SG. The agreement between SepPak® and ITLC-SA was also higher than that between ITLC-SG, but more trials below the critical 90% purity level are needed. ITLC-SA paper is readily available and could serve as a viable alternative RCP testing method for 111In-pentetreotide.

U.11 The Economic Impact of a Recession on Nuclear Medicine Diagnostic Procedures

Lance Schilling
Collaborator: Stephanie O' Brien, St. Joseph's Hospital, Marshfield, WI
Advisor: Carlyn Johnson, Nuclear Medicine Technology, St. Joseph's Hospital, Marshfield, WI

The economic recession that recently impacted the United States has also affected the communities of Central Wisconsin. There appears to be a decline in the number of patients undergoing nuclear medicine diagnostic procedures, specifically at St. Joseph's Hospital. The purpose of this study was to evaluate the effect of the economy on the quantity of specific nuclear medicine procedures performed. This study evaluated statistical data collected by St. Joseph's Hospital and the immediate surrounding counties from January 2008 to November 2009. Graphical analysis was used to assess the relationship between the unemployment rate and the number of nuclear medicine procedures completed. Specifically, myocardial perfusion, general bone, and positron emission tomography/computed tomography (PET/CT)

procedure trends were observed. A direct association between these specified procedures and the economy can be hypothesized, assuming unemployment rates are indicative of an economic recession. General bone procedures demonstrate a consistent decline, which is a trend that was present before the "economic recession." Both myocardial perfusion and PET/CT procedures show a decrease in the number of outpatient procedures with a slight increase in the number of inpatient procedures completed. The myocardial perfusion and PET/CT outpatient procedures demonstrate a positive correlation with the economic decline, while the same inpatient procedures do not. General bone procedures also appear to have no correlation with the economy.

U.12 Effect of SPECT/CT Registration on MPI Scans

Sara Martin
Collaborator: Laurie Manson, St. Joseph's Hospital, Marshfield, WI
Advisor: Carlyn Johnson, Nuclear Medicine Technology, St. Joseph's Hospital, Marshfield, WI

Hybrid imaging with single photon emission tomography and computed tomography (SPECT/CT) is rapidly becoming the modality of choice for myocardial perfusion imaging (MPI) due to improved attenuation correction algorithms. This study assesses the effect of misregistration on SPECT/CT myocardial perfusion imaging results. Fourteen randomly selected patients who had undergone SPECT/CT MPI studies were retrospectively evaluated. Normal and abnormal studies were categorized and evaluated separately. Each patient's original scan was reprocessed twice using a small (10 mm) and a large (15 mm) manually applied SPECT/CT misregistration in both the x and y directions. The misregistered results were then compared to the original physician dictated results. Based on the data collected, the small and large misregistrations exhibit altered perfusion wall defects on both the normal and abnormal MPI studies. The misregistrations on the normal studies introduced various wall defects, resulting in a 33% increase in false positive studies. Fifty percent of the abnormal studies demonstrated a change in the wall defects, producing a mix of both false positive and false negative studies. SPECT/CT misregistration can have a detrimental effect on the MPI image results, specifically, perfusion wall defects. These defects may lead to misinterpretation by the physician; therefore, careful consideration must be taken when registering SPECT/CTs for MPI studies.

U.13 Study of Hibernating Ground Squirrels May Lead to Cold Storage of Human Platelets

Ryan Benrud
Advisor: Scott Cooper, Biology

Platelets are small, anucleate cell fragments found in blood. They function primarily to stop bleeding and play a role in leukemia, septic shock and hemophilia. Currently, there is no known method for the prolonged storage of human blood platelets. Due to rapid bacterial infection, the shelf life of human blood platelets is approximately five days. This brief storage time results in decreased availability of platelets in the medical community. Platelets cannot be stored in the cold because of a temperature dependent rearrangement of a surface protein. The sequestration of this protein on the surface of the cell causes the platelets to be taken out of circulation by specialized liver macrophages. However, mammals that hibernate in the winter have been shown to have body temperatures as low as 4°C. This project has been using the thirteen-lined ground squirrel (*Spermophilus tridecemlineatus*) as a model organism to monitor the behavior of platelets *in vivo*. As well as having a low hibernation temperature, these animals take 90% of their platelets out of circulation and store them in the spleen. We have shown that both 4°C and 37°C re-injected platelets are cleared at equal rates from the squirrel's circulation. As a control, the same experiment was performed on rats, which were shown to have increased clearance of cold platelets. We have also shown that upon arousal, platelets are still functional and remain in circulation for a reputable period of time. This information shows that these squirrels have a physiological mechanism to store platelets in the cold. In the future, we will look how platelets are taken out of circulation by hepatocytes (normal liver cells). Using this information, we will hopefully find a mechanism for the prolonged storage of human platelets.

U.14 Does Happy at Home Mean Happy at Work? Life Satisfaction and Sales Performance

Meaghan Rowe-Johnson
Advisor: Tracie Blumentritt, Psychology

Individuals involved in sales, especially high pressured sales jobs such as car sales, provide a unique group of respondents with whom to explore research on the relationship between life satisfaction and sales performance. Findings from this study may help the overall understanding about traits or methods that may yield increased production and better performance for car salespeople. Previous research has shown that stressors negatively affect a salesperson's

performance; however, an individual's overall life satisfaction and personal wellness may positively contribute to his or her sales performance. Consequently, for employee well being and workplace productivity, it is important to ascertain factors associated with salespeople's ability to effectively deal with workplace stress. Car sales participants have been solicited from three different branches from Zimbrick Car Dealerships in Madison, Wisconsin and will also be solicited from dealerships in La Crosse, Wisconsin. Each participant will be given a survey that asks about the type of daily pressure they feel through work, how they currently handle stress, and their current lifestyle habits. Salespeople will also receive a questionnaire in order to measure participants' degree of enjoyment/satisfaction in various areas of daily functioning. In addition, the participants will complete a self evaluation on sales productivity. This study will explore the strength of the relationship between life satisfaction and sales performance using correlational analyses on SPSS. It is expected that sales people who have a positive state of multidimensional life/work satisfaction will be able to more adequately handle undue sales stress and, in turn, perform better at work. If this hypothesis is supported, academia will gain a better understanding of the factors that contribute to increased production and better performance for car salespeople.

U.15 A Comparative Faunal Analysis of the Sand Lake, Pammel Creek and Jim Braun Sites in La Crosse County

Megan Leigl
Advisors: James Theler and Constance Arzigian, Sociology/Archaeology

Using comparative collections at the Mississippi Valley Archaeology Center and reference books, I have identified faunal remains found at the Sand Lake Site during excavations in the summer of 2009. Using these identifications, I can infer what ecological resource zones were being utilized by the Oneota inhabitants there, and where the majority of their animal food resources were coming from. This data can then be compared to two other La Crosse area Oneota sites – Jim Braun and Pammel Creek - to determine if the chronological and spatial differences between the three sites affected the types of resource zones being harvested.

U.16 Black-on-White Connections: A Look at the Relationship of Classic Mimbres Black-on-White Bowls with Burials

Melyssa Huston
Advisor: Constance Arzigian, Sociology/Archaeology

From A.D. 750 – 1150, the Mimbres culture of southwestern New Mexico made unique black-on-white ceramics. Although the majority of these ceramics are not found within the context of burials, many burials contain at least one black-on-white bowl, usually inverted over the head of the buried individual. Throughout the years, scholars have attempted to explain the phenomena of the inclusion of black-on-white bowls with buried individuals, suggesting it was a mark of status. These studies mostly focused on the quantity of bowls with an individual and the design patterns among a group of individuals. Their findings reveal no significant indication of status associated with the bowls; no one individual was treated differently from any other. In the following investigation, connections between different attributes on Mimbres black-on-white bowls and burials are investigated through intra- and intersite investigations for four sites in the greater Mimbres cultural region. Through analysis of proportions and correlations this study will determine if patterns exists between the ages of buried individuals and attributes of degree of wear, design, and both attributes of degree of wear and design together on Mimbres black-on-white bowls.

U.17 Analysis and Interpretation of the Subsistence and Archaeological Features at the Heath Site (39LN15) Lincoln County, South Dakota

Laura Tomcek
Advisor: Constance Arzigian, Sociology/Archaeology

The Heath site (39LN15) is an archaeological site in Lincoln county South Dakota that is attributed to the Great Oasis culture, late prehistoric farmers on the Great Plains, and should date to the period 950-1100AD. No formal analysis of the Heath site has been published and the mollusk and floral collection had remained unidentified since its excavation in 1976. While the Heath site is considered part of the Great Oasis site based on ceramic analysis, the chronology of this site and the Great Oasis culture in general are poorly understood. For my project, I sorted and identified the floral remains and analyzed the previously identified faunal assemblage to examine subsistence patterns, seasonal occupation, and environmental change across the site. Part of my study looked at the methodological difference of using different ways of quantifying faunal remains, including Number of Identified Specimens (NISP) and Minimum Number of

Individuals (MNI), to see how these different methods affect our interpretation of subsistence across the site. Calculating meat weight of specimens present in the archaeological assemblage adds another element in the evaluation of the importance of certain animals present. Floral materials illustrate the environmental conditions of the site at the time of occupation and lend evidence for subsistence patterns. Additionally, two charcoal samples were submitted to obtain radiocarbon dates to aid in better understanding the chronology of Great Oasis sites and their relation to the preceding terminal Late Woodland culture and contemporary Initial Middle Missouri culture. While the Heath site is a Great Oasis culture site by ceramics, both dates tested several hundred years earlier, suggesting that this site may also have an early component or that the charcoal tested originated from old trees, thus dating to a period much earlier than the actual occupation.

U.18 Let's Play: Observing Physical Activity in Children at Day Care Centers

Clare Kaufman
Advisor: Rachel Hazuga, Exercise and Sports Science

With the increased prevalence of childhood obesity, day care centers, another source of influence on a child's behavior, are now looking for ways to incorporate physical activity into their programs. Therefore, the purpose of this pilot study was to observe physical activity sessions of children at a day care facility. Participants included five boys and girls aged 8.3±1.3 years who attended a local day care facility. Four activity sessions were observed; two utilized a new curriculum purchased by the facility while the other two sessions were common activities. At each session, the principle investigator determined the relevance of the session towards improving either health or skill. Participants wore pedometers and were asked to rate overall activity enjoyment. Of the sessions observed, three were health related focusing on cardiovascular endurance and the fourth was skill related focusing on catching/throwing. Results showed higher step counts in the health related (HR) compared to the skill (S) activity (HR1: 1937.4 ± 558.8; HR2: 1529.3 ± 203.6; HR3: 1722.0 ± 1440.0; S1: 734.2 ± 110.9). In addition, participants reported enjoying all the activities. Overall, the results suggest day care facilities may be effective in contributing to the physical activity habits of children. In fact, a curriculum that offers day care providers with health related activities may be adequate in helping children obtain their recommended daily physical activity. However, while improving health is important, recent research has suggested skill development may also positively influence physical activity participation. While our data was only preliminary and limited to low participant numbers, it does suggest merit in observing physical activity practices at day care facilities.

U.19 An Initial Estimate of Population Genetic Structure of the Invasive Faucet Snail, *Bithynia tentaculata*, in the Upper Mississippi River

Joshua Laurila
Advisor: Kathryn Perez, Biology

Since 2002, there has been a widespread die-off of water birds in the Upper Mississippi River. The invasive freshwater snail *Bithynia tentaculata* serves as an intermediate host for three parasitic trematodes that are causing mortality in the birds. This research is aiming to determine the genetic variability of the invasive *Bithynia*. This project has involved gathering *B. tentaculata* samples from areas around the Mississippi River, DNA extraction, PCR amplification of mitochondrial genes and microsatellites, sequencing the amplified DNA, and phylogenetic analysis to determine the genetic variation among and between different populations. The short term goals are to determine gene flow of *B. tentaculata* in different parts of the Upper Mississippi River and to gain insight into where the invasion most likely originated from in Europe. Preliminary results have indicated little mitochondrial gene variation, but much more variation is expected from the microsatellite data. This would be due to the increased rate of mutation, and therefore variation, in the regions of DNA targeted by microsatellite primers. The information will then be used in collaboration with the UW-La Crosse River Studies Center and U.S. Army Corps of Engineers to determine whether the snails' genetics can be correlated to likelihood of parasite transmittance and to develop new management actions for control of the invasive snails.

U.20 Translation of Incremental to Steady State Exercise Response

Aimee Schneider and Erica Wherry
Advisor: Carl Foster, Exercise and Sports Science

Exercise training intensity for sports performance is often prescribed in terms of physiologic markers, such as ventilatory (VT) and respiratory compensation (RCT) thresholds. However, direct measurement of VT and RCT is both time and technology intensive and thus not well suited to widespread use. Previous studies have suggested that 50 & 75% of peak cycle power output might be a simple way to estimate VT & RCT. This study was designed to define the power output (PO) and/or velocity (VEL) which, during steady state exercise, would yield a VO_2max=VT&RCT determined during maximal exercise. Well-trained subjects (n=8) performed both maximal incremental cycle & treadmill exercise to define VO_2max(3.11 & 3.57L*min-1),VT(2.07 & 2.46 L*min-1) & RCT(2.60 & 2.88L*min-1). On separate days, they performed multiple bouts of steady state exercise to allow definition of the PO & VEL during steady state VO_2 that would yield the VO_2 at VT & RCT, expressed as a percentage of the maximal PO & VEL. The VO_2 @ VT was observed at a mean (sd) of 54(10)% maximal PO & 66(6)% maximal VEL ($p<0.05$ cycle vs. run). The VO_2 @ RCT was observed at 72(4)% maximal PO and 77(8)% of maximal VEL ($p>0.05$ cycle vs. run). The results suggest that VT & RCT can be identified using simple percentages of maximal PO and VEL from cycle ergometer and running tests, respectively. This may allow for appropriate exercise prescription with a minimum of technological burden.

U.21 Fabric, Form, and Function. Anomalous Tempers in Fineware Ceramics from el-Mahâsna, Egypt

Dustin Peasley
Advisor: David Anderson, Sociology/Archaeology

During the 1995-2000 seasons of the el-Mahâsna Archaeological Project in Egypt, a small proportion of the recovered fineware sherd assemblage was identified as having been manufactured using anomalous tempers relative to the majority of those recovered. This paper will discuss the results of an analysis of these ceramics conducted during the recent 2009/2010 excavation season. In particular, this study examined the relationship between fabric, form, and function within the fineware ceramics at el-Mahâsna in an attempt to determine if temper was related to vessel function or rather was the result of the region of origin of the vessels.

U.22 Negative Design at the Carboxy-Terminal Beta-Edge of Truncated Hemolysin A

Jake Mahoney
Advisor: Todd Weaver, Chemistry

Hemolysin A (HpmA) from *Proteus mirabilis* is secreted via the Two-Partner Secretion pathway, which is utilized by Gram-negative bacteria as an energy-independent mechanism for secretion of large virulence proteins. A truncated form of HpmA (HpmA265) has been shown to activate full-length HpmA in a template-assisted and thermally stable fashion. HpmA265 was recently analyzed by X-ray crystallography, revealing a right-handed β-helical structure and a dry dimeric interface between exposed C-terminal β-edges of HpmA265 subunits. These characteristics are typical of disease-state proteins of beta-amyloid diseases such as Alzheimer's and CJD. In order to characterize the possible role of exposed β-edge interactions in the template-assisted hemolytic activity, negative design principles were applied by replacing the C-terminal hydrophobic residues F241 or M245 with positively charged lysine residues. The mutants, F241K and M245K, were then characterized via template-assisted hemolytic assays, temperature stability studies, and circular dichroism (CD). F241K displayed faster template-assisted activation and greater heat stability, as well as more organized β-structure. However, M245K was less active, less heat stable, and showed decreased β-structure. These results suggest that the incorporation of positive charge in the exposed β-edge effectively destabilizes the helix, inhibits template-assisted activation, and correlates with loss of beta signal from CD.

U.23 Structural and Functional Studies of Hemolysin A Carboxy-Terminal Truncates 141 and 243

Daniel Laurent
Advisor: Todd Weaver, Chemistry

The two-partner secretion pathway is the most commonly found protein secretion pathway within gram-negative bacteria. TPS pathways harbor both A (TpsA) and B (TpsB) components. TpsB components are beta-barrel outer membrane proteins that are responsible for the coupled secretion and activation of their paired TpsA component. TpsA

components include adhesions and hemolysins. Recently, we have characterized HpmA265, a truncated TpsA homologue from *Proteus mirabilis*. Functionally, HpmA has been shown to facilitate biphasic, cooperative, heat stable, and uni-directional activation of hemolysis. Structurally, HpmA265 was shown to adopt a right-handed beta-helix structure and form a dry, dimeric interface between exposed, carboxy-terminal, on-edge beta-strands. To further investigate the importance of exposed on-edge beta-strands we constructed a series of truncated mutants that proceeded up the beta-helix. HpmA243 and HpmA141, which harbor the first 243 and 141 residues, were the focus of this study. The two carboxy-terminal mutants were expressed, purified and characterized for hemolytic activity. Both carboxy-terminal truncated forms of HpmA were still able to facilitate the activation of hemolysis. In addition, HpmA141 was able to maintain higher order oligomeric structure even in the presence of anionic detergent and high temperature. The results further support the theory that exposed carboxy-terminal beta-edges are utilized to facilitate TpsA folding and activation. This model of activation has similarities to the propagation of beta-amyloid diseases.

U.24 An Agroecological Comparative Study of Monongahela and Oneota Land Use with GIS

Jenica Simon
Advisor: David Anderson, Sociology/Archaeology

This project is a multidisciplinary evaluation through Archaeology and GIS of agroecological land use patterns of two early native, maize agricultural societies. The Monongahela Culture occupied the Upper Ohio River Valley from AD 1100 to AD 1630, shifting to upland areas either for the advantage of superior crop land or military security during the Late Monongahela phase; meanwhile, the Oneota Culture settled much of Wisconsin from AD 923 to AD 1720 and were corn horticulturalists, still seasonally moving around for other resources including aquatic reserves. Bone isotope analysis depicts a rising reliance on maize agriculture for the Monongahela from roughly 50% later rising to almost 90%, while Oneota reliance remains around 15%. Performing visual and statistical analysis using GIS, the temporal land use change will begin to answer when agricultural resources became the predominant factor in prehistoric settlements rather than access to hunting and gathering resources, military advantage, or any other theoretical factors. This comparative study also demonstrates the differences of wholly agricultural dependent society demonstrated in the Monongahela versus a horticultural hunting and gathering adaptation as seen in the Oneota.

U.25 An Analysis of Bird Population Trends in the Upper Mississippi River Valley

Claire Michalek and Jeff Cadry
Advisor: Rob Tyser, Biology

Studies by state and federal wildlife managers have documented trends in bird populations throughout the U.S. However, population trends in the upper Mississippi River Valley have not yet been described. Population data (1966-2009) for species of special conservation concern were obtained from surveys within a 50 km buffer around the northern portion of the Mississippi River. Our analysis shows that grassland species have experienced the most significant decline during this study period. In particular, the Eastern Meadowlark has experienced especially sharp declines in abundance. Species that are year-round residents and short distant migrants also experienced declines in abundance. Interestingly, abundances of neotropical migrants showed no overall change. Our analysis suggests that grassland species are of primary concern in this region and require major conservation action

U.26 Latent and Transgenerational Reproductive Toxicity Following Developmental Exposure to Sublethal Concentrations of TCDD is Associated with Impaired Ovarian Development

Alissa Ganser
Collaborators: Warren Heideman and Richard E. Peterson, Molecular and Environmental Toxicology Center, University of Wisconsin – Madison
Advisor: Tisha King-Heiden, Biology

2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) is a halogenated aromatic hydrocarbon and ubiquitous environmental contaminant. TCDD is a known endocrine disrupter that interferes with signals that regulate early development and sex differentiation. Zebrafish exposed to sublethal concentrations of TCDD (25 pg TCDD/ ml, ppt) from fertilization through sex differentiation showed reduced fecundity and fertility of both exposed fish and their offspring. Here, we provide a histopathologic assessment of these females along with their female offspring to determine whether impaired reproduction was associated with alterations in ovarian development. Our findings demonstrate that ovaries of some exposed females and their unexposed offspring contained increased numbers of atretic follicles and decreased numbers of mature follicles; these impairments correlate with reduced egg production. Additionally, we present preliminary data

that suggest exposure to TCDD for one hour shortly after fertilization can also impair ovarian development. These preliminary findings suggest that TCDD may cause an initial induction of follicle maturation in young adult fish, and are associated with reduced egg production. *In vitro* exposure of fully-grown follicles (arrested in prophase I) to TCDD supports this hypothesis. Additional studies are clearly needed to understand the mechanisms by which TCDD exerts its ovarian toxicity, and how this may be passed on to their offspring.

U.27 Regulation of Von Willebrand Factor in *Spermophilus tridecemlineatus*

Bradley Burmeister, Samuel Walther, and Brett Duffin
Advisor: Scott Cooper, Biology

The 13-lined ground squirrel (*Spermophilus tridecemlineatus*) has been previously shown to intricately regulate several clotting factors. As a hibernator, this is necessary for survival since during torpor blood is more stagnant due to the decrease in pulse rate. Previous work in our lab has shown that the concentration of plasma von Willebrand factor (vWF) decreases 10-fold during hibernation. Furthermore, this work has shown that vWF is regulated at the transcriptional level. This project specifically looks at the molecular regulation of the vWF gene. We currently have cloned what we believe to be the promoter region of the vWF gene and will be performing a gel shift assay and MALDI-TOF on the region to determine if any transcription factors bind to and regulate the gene. This could be potentially clinically relevant to understanding human von Willebrand disesase.

U.28 Effects of Hibernation on Fibrinolysis and Platelet Clot Stability in 13-Lined Ground Squirrels

Gina Kaczmarek, Bridget Kohlnhofer and Gaelle Talhouarne
Advisor: Scott Cooper, Biology

During hibernation, a ground squirrel (*Spermophilus tridecemlineatus*) has decreased blood flow, which could lead to the formation of stasis blood clots. Ground squirrels have been shown to suppress blood clotting in order to survive hibernation. However, the stability of blood clots and the degradation process through fibrinolysis have not been determined. Preliminary results indicate no significant difference in plasminogen levels during hibernation. To see if fibrinolytic pathways were being activated during hibernation, plasmin activity was measured, and found to be 4-fold higher in pooled hibernating versus pooled non-hibernating plasma. These results suggest that fibrinolysis may be activated during hibernation, suggesting that some clots are still forming in spite of the suppression of hemostasis by the ground squirrels. A clot retraction assay was used to compare the stability of clots, and human platelet clots retracted in 45 minutes on average, compared with 25 minutes for non-hibernating ground squirrels. The stability of blood clots in hibernating and non-hibernating squirrels will be compared with the clot retraction assay when hibernating ground squirrel blood becomes available in the winter. A decreased stability of platelet clots may also protect ground squirrels from the formation of clots during hibernation

U.29 Assessment of Undergraduate Research Experience at UW-L

Sarah Strohmenger and Erica Perrin
Advisor: Betsy Morgan, Psychology

In order to assess general awareness and appraisal of undergraduate research/creativity activities at UW-La Crosse, an electronic survey was sent to 900 UW-La Crosse undergraduates in Spring 2009. The survey yielded a response rate of 23% with a final sample of 203 useable responses that appropriately approximated the demographics of the university at large; although sophomores were underrepresented and males were slightly underrepresented. Approximately 20% of the sample indicated that undergraduate research (UGR) was a noticeable or extensive part of their college experience, 6% for sophomores up to 27% for seniors. The three major reasons given for not completing undergraduate research opportunities were coursework (60% mentioned this reason), work conflicts and lack of interest (~30% each) – these reasons showed some interesting college variation with CLS students much more likely to mention a lack of perceived benefit to their careers. In terms of awareness of the variety of undergraduate research opportunities at UW-L, a majority of students (50-60%) were aware of the opportunities and awareness grew with students' level in college. Participants indicated that faculty announcements were the most influential mechanism through which students learned of UGR opportunities - followed by emails and fellow students.

U.30 Characterization of the Microbial Community of *Arion fasciatus*

Derrick Berg
Advisor: Bonnie Bratina, Microbiology

Studies of the recently discovered "facultatively" aquatic slug, *Arion fasciatus*, have shown a rich diversity of microbial life residing within its intestinal tract. As these slugs, found in spring-fed streams in both Wisconsin and Minnesota, have only been recently discovered, a complete analysis of the slug's microflora (microorganisms living in a close relationship, perhaps even an endosymbiotic relationship, with the slug) has not yet been completed. To study the microflora composition, DNA was extracted from slug gut contents and the 16S ribosomal RNA (rRNA) genes were amplified using the polymerase chain reaction (PCR). The 16S rRNA genes were separated using clone libraries to allow for the comparative analysis of the slug's microflora from different locations and environmental conditions. Clone libraries have been constructed from DNA from slugs collected from five different Wisconsin and Minnesota streams. The 16S rRNA gene, from 10-20 clones from each library, has been sequenced and analyzed for closest phylogenetic relative. This preliminary characterization has shown different levels of diversity at the sites. No organism has been found in the slugs from all five sites, however, *Buttiauxella* sequences have been recovered from 3 of the 5 sites. Additional sequencing is being conducted to allow for a more thorough comparison of the microbial communities between the locations.

Poster Session B
Valhalla Hall: 11:00am-12:45pm

U.31 A Comparison of Sexual and Relationship Satisfaction in Short-Term and Long-Term Relationships

Kevin Lewandowski and Tara Schrage
Advisor: Lisa Caya, Psychology

The purpose of this study is to look at the differences between couples in short-term and long-term relationships in regards to relationship satisfaction, sexual satisfaction, and sexual conflict. Our research can be utilized by counselors who work with young adults in relationships and may help explain and minimize problems in early dating situations. Data collection took place during November, 2009. There will be 20 males and 20 females from short-term relationships lasting at least one month of duration and 20 males and 20 females from long-term relationships lasting at least six months of duration. The participants will complete a 10-15 minute questionnaire through email where they will complete three different tests measuring relationship satisfaction, sexual satisfaction, and sexual conflict. Relationship satisfaction refers to the level of contentment individuals feel toward their primary romantic partner and was assessed with the Relationship Assessment Scale (RAS) (Hendrick, 1988). This scale uses a 7-item Likert scale that includes questions such as "How well does your partner meet your needs," and "In general, how satisfied are you with your relationship?" (Hendrick, 1988, p.94). Sexual conflict will be assessed with the Premarital Sexual Conflict Scale (PMSCS). The PMSCS uses a 5 item Likert scale that measures items such as "conflict over the frequency of sexual involvement" and "conflict over who initiates sexual activity" (Cate, Fehsenfeld, Long, & Williams, 1996). Finally, sexual satisfaction will be assessed in the relationship with a 5 item Likert scale in response to the question "How sexually satisfying is the relationship to you?" (1 = not at all to 7 = very) (e.g., Sprecher, 2003). We hypothesize that individuals in long-term relationships will have higher relationship satisfaction, higher sexual satisfaction, and will experience lower levels of sexual conflict than those in short-term relationships.

U.32 What's In A Voice: Vocal Characteristics and Their Influence on Courtroom Decision Making

Lee Starck and Tiffany Entringer
Advisor: Alex O'Brien, Psychology

The proposed study will investigate the perception of vocal characteristics and the impact they have on decision making. One focus of jury research explores perceptions of defendants. Individuals can form attitudes very quickly – often in less than 45 seconds (Kassin, Fein, & Markus, 2008). Consequently, jury members can potentially form opinions regarding defendant before they have conducted due process. The proposed study explores the role of the vocal characteristics of defendants as an influential factor on the decision making process of jurors. Specifically, pitch and speech rate will be examined for their effects on veracity (truthfulness) of a defendant as well as his verdict. It is predicted that low pitch and fast rate of speech will be perceived as more truthful. 180 participants will be randomly assigned to one of nine conditions where both pitch and speed will be manipulated in the defendant's vocal testimony. A questionnaire will be utilized to assess veracity of the defendant, verdict, and perceptions of law enforcement. If our hypotheses are supported it would suggest those who possess a lower pitched voice and speak at a faster rate will be perceived as more truthful, thus less guilty.

U.33 Nonverbal Expectancy Violations in Intercultural Interactions: A Survey of Hmong, Saudi Arabians, and White Americans

Krista Hagman, Rawan Albenjabi, and Sara Donahoe
Advisor: Tony Docan-Morgan, Communication Studies

Nonverbal expectancies, or what people predict will happen regarding others' nonverbal behavior, concern an important and culturally significant topic in the field of nonverbal communication. These expectancies are often violated, however, and affect the nature of human interactions. Previous research on nonverbal expectancy violations has lacked an examination of cultural differences and similarities. The current study was designed to discover the similarities and differences of nonverbal expectancy violations across participants who report as U.S. White American, Saudi Arabian, and Hmong. College students completed open-ended survey questions about instances when they experienced nonverbal expectancy violations in intercultural interactions (e.g., invasion of personal space). The findings demonstrate that all three groups report experiencing nonverbal expectancy violations in intercultural interactions, and the most commonly reported expectancy violations involved staring and invasion personal space. Further, the majority of those surveyed

reported a negative reaction to the violation. The three groups surveyed reported far more similarities than the differences in the types of violations. This study has implications for expectancy violations theory, and the study of nonverbal and intercultural communication.

U.34 Sex on the Beach: An Interactive Look at Perceptions of Sexual Behavior and Alcohol Consumption in College Students on Spring Break

Stephanie Navarre and Elizabeth Perkl
Advisor: Keely Rees, Health Education and Health Promotion

Spring Break is a one week vacation period where students often deviate from their normal habits to meet new people, experiment with alcohol and/or drugs, and engage in sexual activities. To discover more about this popular college culture experience, the researchers traveled to the Spring Break destination of Panama City Beach to survey college students. Data was collected from ~375 college students, 18-25 years in age, relating to perceptions of their sexual behavior and alcohol consumption. Before traveling to Panama City Beach, the survey was administered during "The Safe Spring Break Party" at a university in Western Wisconsin. The data collected from this group serves as the control for this research. In March 2009, the researchers traveled to Panama City Beach to administer surveys to college students on Spring Break. The participants that took the survey were provided an incentive of a "Safe-Lei" (Hawaiian lei with condoms attached). Through observation, the researchers assessed the presence of health organizations providing health information and resources to college students on the beach.

U.35 Protein Residue Analysis on End Scrapers from 47Lc164, Onalaska, Wisconsin

Michael McQuin
Advisor: Constance Arzigian, Sociology/Archaeology

During excavations at the Engraving site (47Lc164) in Onalaska Wisconsin, archaeologists from the University of Wisconsin La Crosse recovered eighteen end scrapers. End scrapers are commonly found in Oneota culture sites, and therefore can sometimes be overlooked as sources of information pertaining to this culture. However, with the recent advancements in protein residue analysis, archaeologists are able to determine the type of substance being processed by lithic tools; whether it is floral or faunal in nature. The question of how bison scapulas were acquired by the Oneota has often left archaeologists with little to conclude from. The protein residue analysis on the end scrapers from 47Lc164 will offer answers pertaining to such questions. This project will use the results of a protein residue analysis conducted on the eighteen end scrapers to help determine subsistence patterns of the Oneota people.

U.36 Comparison of FDG Uptake and TNM Staging in Non-Small Cell Lung Cancer

Michael Poppe
Collaborators: Abbie Grancorvitz, St. Joseph's Hospital, Marshfield, WI
Advisor: Carlyn Johnson, Nuclear Medicine Technology, St. Joseph's Hospital, Marshfield, WI

Positron Emission Tomography (PET) studies using 18FDG utilize a standard uptake value (SUV) to help differentiate between malignant and benign lesions. Tumors are staged using the TNM system, where T (T0-T4) represents the extent of the primary tumor, N (N0-N3) corresponds to lymph node involvement, and M (M0-M1) reflects the absence or presence of metastases. SUV and TNM values assist clinicians in cancer treatment and prognosis. The goal of this research is to determine if the SUV is related to the TNM staging in non-small cell lung cancer (NSCLC). The dictated SUV and TNM staging of sixty-two patients who underwent an initial PET/CT scan for NSCLC were assessed. Three categories were evaluated: T1 vs T2-4, N0 vs N1-3, and M0 vs M1. A mean was then determined for each group. The data shows that the mean SUV for T1, N0, and M1 are lower than T2-4, N1-3, and M0, respectively. An SUV below 10 for both T and N stages is indeterminate; however, an SUV greater than 10 for both T2-4 and N1-3 groups shows a stronger correlation. There appears to be no relationship between the SUV and M stage. A larger patient sample would provide more statistically accurate data.

U.37 Comparison of PET/CT Post-Reconstruction Algorithms

Aaron Paiva
Collaborators: Abbie Grancorvitz and Randell Kruger; St. Joseph's Hospital, Marshfield, WI
Advisor: Carlyn Johnson, Nuclear Medicine Technology, St. Joseph's Hospital, Marshfield, WI

The critical function of translating detected ionizing radiation emitted from patients into the formation of a representative map of physiological function is carried out by post-reconstruction algorithms. Accuracy of this rendering is paramount for both early detection and staging of lesions in the human body. The purpose of this study is to compare the image quality of a Hanning filtered-back-projection (FBP) to a Butterworth FBP algorithm. Three measurements were used to judge quality; Target Signal-to-Noise-Ratio (SNR), Background SNR and Contrast-to-Noise Ratio (CNR). Three fusion levels were evaluated. A NEMA IEC Body Phantom was acquired using a PET/CT scanner. The phantom consists of 6 sphere inserts with diameters of 10 mm, 13 mm, 17 mm, 22 mm, 28 mm, and 37 mm. Each sphere was filled with 18FDG and Ultravist 300 CT contrast using a 10:1 ratio. The acquisition was obtained at a typical clinical level using a 10:1 sphere-to-background ratio. The emission data was alternately reconstructed with Butterworth FBP and then with Hanning FBP. Utilizing manufacturer software, regions of interest were drawn for each sphere as well as their corresponding backgrounds. Mean and standard deviation information was recorded for each algorithm at the following levels of fusion: 100% CT, 50% CT/ 50% PET, and 100% PET. Target SNR, Background SNR and CNR were then calculated for each level. Results: At each fusion level, the Hanning FBP demonstrated superior Target SNR, Background SNR and CNR over the Butterworth FBP. Data from the 10 mm sphere was omitted due to lack of registration at each level of fusion for both Hanning FBP and Butterworth FBP. Hanning FBP provides a more realistic representation of lesion size than Butterworth FBP while minimizing the level of noise. Implementation of this postreconstruction algorithm would improve the diagnosis and staging of lesions in the human body.

U.38 Stoic, Stubborn, or Sensitive: How Masculinity Affects Men's Help-seeking and Help-referring Behaviors

Emily Gorski
Advisor: Ryan McKelley, Psychology

Men are historically less likely to seek help than women, a finding which has serious implications to their physical and mental health. American men die approximately five years earlier than women and have higher mortality rates for 14 of the 15 leading causes of death. Help-seeking rates are even lower for men who conform to traditional masculine norms. Research shows men are more likely to refer others for help; however, little is known about why this discrepancy exists. It is possible that referring another to seek help is easier since the problem is further-removed as a threat to self-esteem or independence, but it is not known how this relates to conformity to traditional gender norms. The purpose of this study is to determine the effect of conformity to masculine and feminine norms on the help-seeking and help referring behaviors of men. Participants were 158 UW–La Crosse males. Participants were given a short hypothetical scenario describing a set of either physical or mental health symptoms. The subject of the scenario was manipulated in one of three ways: self, close male friend, or close female friend. Participants were randomly assigned to one of six possible conditions. After reading the scenario, participants indicated their likelihood of recommending that the person (himself, male friend, or female friend) seek professional help for the problem. Participants then completed the Conformity to Masculine Norms Inventory and the Conformity to Feminine Norms Inventory, which measure the degree to which individuals adhere to traditional gender norms, and the Miller Social Intimacy Scale to assess relationship closeness. Finally, each participant completed a demographics questionnaire. It is hypothesized that men will advise women and other men to seek help more often than they would seek help themselves, and that more traditionally masculine men will have more negative attitudes about help-seeking in general.

U.39 An Analysis of Faunal Remains from the Site of el-Mahâsna, a Predynastic Settlement in Upper Egypt

Emily Turriff
Advisor: David Anderson, Sociology/Archaeology

The Predynastic period in Egypt is one of the most understudied and least known periods of Egyptian chronology. Spanning a time period of 5,500 to 3,050 B.C, it is the time that leads up to the unification of Egypt and the time of the Pharaohs. Much of the archaeology that has been done at Predynastic sites has been at cemetery sites. The site of el-Mahâsna is a Predynastic settlement that can tell us more about the day-to-day activities and interactions of the people of the Predynastic. Because el-Mahâsna has both domestic and ritual contexts, there is a unique opportunity to observe the similarities and differences between these two contexts. This project will use faunal remains to determine how

domestic and ritual centers of activity compare. The analysis of faunal remains can tell us how broadly certain animal species were used at the site or if they were confined to just domestic or ritual centers.

U.40 The Effectiveness of Cryotherapy in the Treatment of Exercise-Induced Muscle Soreness

Molly Day and Emily Ploen
Advisor: Cordial Gillette, Exercise and Sports Science

Muscle soreness due to unaccustomed physical activity has plagued active individuals for centuries. Delayed-onset muscle soreness (DOMS) peaks between 24 and 72 hours and subsides within 5 to 7 days post-exercise. Inconclusive research exists on the prevention and treatment of DOMS, and treatment strategies are still unclear despite the high incidence of DOMS in novice or elite athletes. The purpose of this study was to compare the effects of cryotherapy on the prevention and treatment of DOMS. Twenty-five subjects between the ages of 18-25 were recruited for the study. Participants were asked to refrain from any form of potentially muscle damaging resistance training or exercise that would induce soreness and from the use of non-steroidal anti-inflammatory drugs for the duration of testing. The subjects performed eccentric free weight curl exercises using a ten-pound dumbbell to induce muscle soreness, and were randomly assigned to either the cryotherapy treatment or control group. The treatment group underwent 30-minute ice treatments which were administered immediately after exercise and then 2, 4, 6, 24, and 48 hours later. The control group was not administered any form of treatment immediately after exercise or thereafter. The participants completed maximal voluntary contraction measurements and perceived muscle soreness to indicate the degree of muscle damage. Measurements were taken pre- and postexercise, 24, 48, 72 and 96 hours thereafter. Analysis of variance (ANOVA) was used to measure differences between the treatment and control groups. Although previously completed studies have not confirmed that the application of cold is an effective treatment technique, it is anticipated that the use of 30-minute cryotherapy treatments will be effective in preventing and reducing the symptoms of DOMS.

U.41 Has Membership in the GATT/WTO Increased Trade?

Raymond Leach
Collaborator: Julia Evans, Department of Politics and Economics, Claremont Graduate University, Claremont, CA
Advisor: Ted Wendt, Mathematics

In recent years, studies on the effects of multi-lateral trade agreements like GATT/WTO on trade have been ubiquitous. The findings of these studies have been as diverse as the approaches, which have yielded everything from no effect on trade (Rose 2004), some effect on trade with uneven benefits (Tomz, Goldstein, Rivers 2005; Gowa and Kim 2005) to significant effects on bi-lateral trade flows in various sectors (Grant and Lambert 2008). Many of these outcomes seem either counter-intuitive or incomplete; indubitably, the most mystifying results have come from Rose (2004). We reexamine Rose's findings and propose relevant additions that better capture the effects of GATT/WTO membership on trade. We argue two main points; first, the strength of institutions and the internal structures of a country are critical to whether membership in these organizations is beneficial. Further, we support and offer a better calibrated measure of distance within Rose's standard gravity equation. We expect to find that the ease of transportation within a country (acting as an indication of strong internal structure and development) and the measure of distance within the gravity model do have an impact on the effectiveness of GATT/WTO membership, though these benefits are inherently unequal among members.

U.42 Music's Effect on Mood and Helping Behavior

Jaden Ganser and Fareen Huda
Advisor: Melanie Cary, Psychology

Humans engage in a wide spectrum of helping behaviors, ranging from small acts of kindness to dangerous heroic deeds. Researchers have found mood to be an important factor in willingness to help. Moreover, background music may affect mood, and consequently influence helping behavior. Participants exposed to music designed to positively manipulate mood were more willing to comply with a request for help than music designed to induce a negative mood (North, Tarrant, & Hargreaves, 2004). Music has also been linked to helping behavior via prosocial song lyrics. Greitemeyer (2009) found that participants exposed to music with prosocial lyrics were more likely to donate to a nonprofit organization compared to those exposed to neutral lyrics. The present research further examines the relationship between music and helping behavior by exploring the different aspects of music that may be conducive or detrimental to helping behavior. Five music conditions are examined: prosocial lyrics, antisocial lyrics, upbeat music,

annoying music, and a nomusic control. Participants complete a variety of filler psychological tasks while music is playing in the background. Mood is pre-tested and post-tested to measure for change. Upon completion of the study, participants are paid five $1 bills and are given the option to anonymously donate all or a portion of the money to a nonprofit organization. Helping behavior is measured by the total amount donated for each condition. We expect that prosocial lyrics and upbeat music will lead to an increase in mood, and thus yield a greater amount of money donated than the other conditions. Likewise, the antisocial lyrics and annoying music will lead to a decrease in mood, and thus result in less money donated.

U.43 Reversible Negative Design Destabilization of Hemolysin A

Andrew DeVilbiss
Advisor: Todd Weaver, Chemistry

Hemolysin A (HpmA) from *Proteus mirabilis* is a member of the two-partner secretion (TPS) pathway found in Gram-negative bacteria. The TPS pathway provides an energy independent mechanism for secretion of large virulence factors, like adhesions and hemolysins. A truncated form of HpmA, termed HpmA265, containing the first 265 residues, facilitates biphasic, cooperative, heat stable, and template-assisted hemolytic activity. The crystal structure of HpmA265 was recently solved, revealing a right- handed beta-helix fold, and a dry dimeric interface formed between Cterminal adjacent HpmA265 monomers. To investigate the role of the C-terminal dry dimeric interface during template-assisted hemolysis, a negative design concept was employed. A positively charged lysine residue was used to replace Leu263 located within the dry, dimeric interface. The resultant mutant has been termed L263K. Template-assisted hemolytic assays confirmed a decreased ability to activate full length HpmA, while circular dichroism (CD) confirmed structural destabilization within L263K. Also, SDS-PAGE, mass spectrometry, N-terminal sequencing, and surface Plasmon resonance confirmed a degradation event at the C-terminus of L263K. Re-analysis via template-assisted hemolytic assays and CD confirmed the restoration of template-assisted hemolysis and beta-signal within degraded L263K. These data demonstrate the C-terminal dry dimeric interface is the important site of interaction between HpmA265 and full length HpmA.

U.44 Estimated Annual Carbon Emissions Produced by Staff Traveling to University-Related Meetings and Conferences

Robert Turner, Patricia Ries, and Christopher Bloomingdale
Advisor: Robin Tyser, Biology

The operation of UW-La Crosse generates a substantial quantity of carbon dioxide that contributes to global warming. Before specific ways of reducing UW-L's "carbon footprint" can be proposed, the amount of carbon dioxide produced by specific campus activities must be documented. Our objective in this study is to estimate annual carbon emissions produced by staff traveling to university-related meetings and conferences. Data were acquired from UW-L Travel Expense Reports for one fiscal year (July 1, 2008 to June 30, 2009). Approximately 2,500 travel reports were filed during this period, and a random sample of these reports were selected for evaluation using a two-stage sampling prodedure. Miles per trip from various modes of transportation (car, airplane, and train) were estimated for each travel report and converted to kg of carbon dioxide emitted using mileage standards provided by government sources. Initial findings show that approximately 303 kg of carbon dioxide were generated per trip. Results of this study will be compared to other universities, and travel policies that are more eco-friendly will be proposed.

U. 45 The Effects of the Media on Food Consumption and Body Image

Katie Belitz and Anthony Frank
Advisor: Bart VanVoorhis, Psychology

In the United States over 107 million adults are overweight, representing 25% of the population (Division of Nutrition, 2009). In the United States, the media is a key component in shaping people's behaviors. Along with images in the media, the type and amount of food consumed can have a profound effect on a person's body image. Recent food intake has been shown to have a negative effect on body image (Vocks, Legenbauer, and Heil, 2007). The purpose of this study is to observe the effects of the media on food consumption and body image. One hundred and twenty undergraduate students from a Midwestern university will view a thirty minute video clip with embedded commercials that advocate either healthy or unhealthy food. Prior to viewing the video clip, participants will take a satisfaction survey including questions about their body image. Throughout the video clip, participants will have access to either organic baby carrots or chocolate Chex Mix ©. After the video clip, another questionnaire regarding the video as well as

body image will be administered. The procedure will occur in four different conditions. In the first condition, participants will watch the video with healthy food commercials. They will be offered carrots. In the second condition, the participants will watch the same healthy food commercial, but be offered Chex Mix©. The third condition will consist of a commercial for an unhealthy food with the participants consuming carrots. In the final condition, participants will watch the unhealthy food commercial and be offered Chex Mix©. The amount of food consumed will be measured after each condition.

U. 46 Single Alpha-Motor Neuron Contributions in Fictive Locomotion

Mike Korsmo and Ashley Millard
Advisor: Brad Seebach, Biology

Relatively little is known about the neural circuitry and activity involved in mammalian locomotion. From the thoraco-lumbar region of an isolated spinal cord, alternating left-right or flexor-extensor bursts of extracellular action potentials can be elicited from motor pools, even though the spinal cord is no longer attached to the brain or musculature. Since such alternating periods of high and low neuronal activity are presumed to be the action potential bursts that stimulate real-life walking, the phenomenon is referred to as fictive locomotion. More specifically, these burst patterns are generated by the neural circuitry of central pattern generators. The long-term aim of this project is to use simultaneous extracellular and intracellular recording techniques to investigate single alpha-motor neuron contributions to pharmacologically induced fictive locomotion of a neonatal rat model. The current focus, however, is to become proficient at performing the techniques required to record action potentials intracellularly from a hemisected neonatal rat spinal cord, before incorporating the extracellular recording techniques, which have already been refined. Intracellular recording allows for the visualization of action potentials generated by individual alpha-motor neurons. In addition, passing a depolarizing current into alpha-motor neurons being recorded from intracellularly allows for the determination of rheobase, a measure of cell excitability. Since a correlation exists between the size of a neuron and its rheobase value, intracellular recording allows for the grouping of alpha-motor neurons according to size. When combined with data from extracellular recording, these groups of alpha-motor neurons will be used to determine if recruitment patterns in fictive locomotion parallel those of real-life walking.

U.47 Evaluation of the *bob*1 Mutation in the *CDC*7-7 Gene of *Saccharomyces cerevisiae*

Nicole Pernsteiner
Advisor: Anne Galbraith, Biology

Saccharomyces cerevisiae is a model organism commonly used to study mitotic and meiotic genes and their role in these cell division processes. Our lab studies several genes in meiosis, including the *CDC7* gene. Previous work has shown that a mutation in a second gene called *bob1* is able to suppress mutations in the *CDC7* gene, indicating a relationship between the roles of these two genes in both mitosis and meiosis. In order to examine this relationship further, the *bob1* mutation was introduced into *cdc7-7* strains of haploid yeast using a standard two-step gene replacement technique. Introducing the *bob1* gene allowed for examination of the effects of the mutations in these two genes on meiosis. The haploid *cdc7-7 bob1* strains that were constructed were used to make a diploid mutant that was analyzed for the ability of the *bob1* mutation to suppress the *cdc7-7* allele in meiosis. Previous experiments conducted with a *cdc7-1 bob1* strain resulted in the *bob1* gene's suppressing the *cdc7-1* mutation, allowing meiosis to occur properly. However, results of the experiment with *cdc7-7 bob1* indicated that the *bob1* mutation could not suppress the meiotic defect of the *cdc7-7* mutation. This suggests that *bob1* suppression of *cdc7* mutations is allele-specific. Other mutant alleles of the *CDC7* gene are also being examined for *bob1* suppression.

U.48 Play: A Comparative Ethnographic Study of Children in Tanzania and the United States

Leah Walker
Advisor: Timothy Gongaware, Sociology

A qualitative, comparative ethnographic study between Tanzanian children attending the Alianga Lutheran Junior Seminary boarding school in Arusha, Tanzania and American children enrolled and participating at the Mathy Center, a Boys and Girls club in La Crosse, Wisconsin. Through participant observation, the children's play behaviors were observed and analyzed to compare the stages of play between the two cultures. Play is an important part of a child's social and cognitive development. By observing children's play, one can gain a better understanding of the culture. Both in Tanzania and the United States, the children's ability to play and the ways in which they played were influenced by their physical surroundings as well as the authoritative figures employed at their specific locations. Furthermore, the

two locations differed in the chores and responsibilities required of the children, though in both cultures children incorporate play into their work. Types of play and socializing between children also varied, from loudness of voice to the physical space involved in the play.

U.49 Modeling and Ranking Driver Performances

Hillary Brummond and Benjamin Brunette
Advisor: Ted Wendt, Mathematics

Currently there is no easy system that allows us to rate a person's ability to drive. There has been little research done with ranking drivers. Our objective is to come up with a model that can accurately rank and order high risk drivers to low risk drivers. This will be useful for private and public enterprises to evaluate their drivers along with insurance companies who want to more accurately determine the risk of their clients. This could very well make transportation companies much safer in that there would be a more objective way in which to extract information from a driver's history and conclude whether a driver is an asset or liability. Insurance companies can benefit from this by reducing driver insurance costs for good drivers and also provide an incentive for bad drivers to increase their ranking. We are beginning to do our research by acquiring records of accident histories in the public domain from police departments and insurance companies. We will then begin to create models that become increasingly more specific by using the records of the drivers. Our goal is to come up with a model that has a balance between one that is easy enough to use but still captures the required level of detail. One that can be used for companies to determine who their best drivers are and one that allows insurance companies to give their customers a number based on a scale that would relate to how well they drive and what they can do to increase their score.

U.50 Attitudes toward Persons with Disabilities: A Comparison of Chinese and American Students

Molly Grames and Cortney Leverentz
Advisor: Carol Oyster, Psychology

Despite disability advocates working to change attitudes toward persons with disabilities, public perception of such individuals is still largely negative. Research indicates that negative attitudes interfere with employment, self-esteem, and health care of persons with disabilities (Pruett, Lee, Chan, Wang & Lang, 2008). One approach to negative perception, or stigma, the socio-cognitive model, states that when compared to emotional or social disabilities, attitudes toward individuals with physical disabilities are more favorable (Corrigan et al., 2000). Similar research conducted in Chinese cultures found that students preferred interactions with persons with physical disabilities over persons with mental disabilities (Wang, Thomas, Chan, & Cheing, 2003). The current study compared American and Chinese students' attitudes toward different types of disabilities: congenital physical, acquired physical, and psychiatric. It was hypothesized that Americans would view persons with disabilities more favorably than the Chinese. Participants consisted of male and female American ($n = 98$) and Chinese international students ($n = 40$). Participants completed a demographic questionnaire and the Attitudes Toward Disabled Persons Scale (Yuker, H. E., Block, J. R., & Young, J. H., 1966). After reading about a hypothetical mentoring program for persons with disabilities, participants performed a Q-sort by ranking nine cards according to who they would prefer to work with most. Two factors (disability type and level of severity) varied among cards. A MANOVA performed on the set of nine disabilities was significant (Pillai's trace $F(9,125) = 4.638$, $p < .001$). Scheffe post hoc tests revealed that Chinese participants had significantly more favorable attitudes toward blindness and cystic fibrosis; Americans had significantly more favorable attitudes toward the shattered knee and broken arm (at the.05 level). Across both groups the lowest acceptance was for schizophrenia; the highest acceptance was for the broken arm. This provides support that physical disabilities are perceived more favorably than psychiatric disabilities.

U.51 The Woodland Occupation of the Lower Sand Lake (47Lc45-1), La Crosse County

Robin Heier
Advisor: Constance Arzigian, Sociology/Archaeology

The excavation of the Lower Sand Lake Site first began in 1984 by archaeologists from the Mississippi Valley Archaeology Center; it was concluded during the 2008 field season by archaeologists from MVAC and students from University of Wisconsin, La Crosse. Lower Sand Lake is a prehistoric site located on a ridge and swale along County highway S, in Onalaska, Wisconsin. Recovery of artifacts included thousands of pieces of grit-tempered pottery, suggesting multiple occupations during the Woodland time period. For this project I will be identifying the ceramic types to establish that the site was occupied from the Early Woodland through the Late Woodland period. I also plan to

show the interaction between the Late Woodland and Mississippian periods, based on the types of ceramics identified and their distribution across the site.

U.52 Household Archaeology at the Site of Pirque Alto, Cochabamba, Bolivia

Matthew Sitek
Advisor: Timothy McAndrews, Sociology/Archaeology

One of the most recent trends in archaeological research has become known as household archaeology; its primary focus being the excavation and analysis of domestic remains. This relatively recent shift in direction for many archaeologists is providing a fresh view of not only how individual household populations lived, but also how these small units of people were influenced, affected, and changed, over time, by broader cultural factors of prehistory. For this reason household archaeological approaches will be employed to investigate the household structure and associated remains uncovered at the site of Pirque Alto (CP-11); a site outside of Cochabamba, Bolivia in the south-central Andes Mountains. A variety of statistical tests will be utilized to indicate everyday activity areas (processing food, eating food, sleeping areas, etc.) that took place in and around the household. This study will help future researchers understand the overall prehistoric context of the site of Pirque Alto and give a general view of what life was like for Cochabamba populations during the Middle Horizon (A.D 500 – 1000); a time characterized by the strong influence of the state level society, Tiwanaku. The overall goal of this study is to contribute to the overall archaeological discussion of what daily domestic life was like for populations living in periphery regions of complex societies.

U.53 Sublethal Concentrations of TCDD Induces Subtle Craniofacial Malformations and Reduces Food Intake in Larval Zebrafish

Danielle Rieck and Elizabeth Hicks
Advisor: Tisha King-Heiden, Biology

2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) is an environmental contaminant that operates via the aromatic hydrocarbon receptor (AHR). In fish, developmental exposure to TCDD causes craniofacial malformations and reduces food intake. Using zebrafish as a model, we have learned much about the mechanisms by which exposure to lethal concentrations of TCDD affects craniofacial development. However, it is not yet clear whether exposure to sublethal concentrations of TCDD produce craniofacial malformations or interferes with food consumption. Here, zebrafish embryos were exposed to 0, 25, 50, and 100 pg TCDD/ml for one hour at 2-4 hours post fertilization (hpf). We used a combination of standard and geometric morphometrics to assess the effects of TCDD exposure on larval growth and craniofacial development through the early stages of larval development (7, 14, and 21 days post fertilization, dpf). When fish reached 21 dpf, individual food-restricted fish were offered brine shrimp for a limited period of time to compare dose-dependent effects on food intake as measured by the proportion of brine shrimp eaten. Our results suggest that exposure to sublethal concentrations of TCDD impairs growth, causes subtle craniofacial malformations, and exposure to $\geq$ 50 pg TCDD/ml decreases food intake of larval zebrafish. Continued studies will help us to better understand the potential contributions of TCDD-induced craniofacial malformations to reductions in forage ability and growth in larval fishes.

U.54 Adipose Tissue Responses to Binge and Restrictive Eating in Ground Squirrels

Bridget Kohlnhofer
Collaborator: Scott Cooper, Biology
Advisor: Margaret Maher, Biology

Fat cells provide peripheral feedback to the brain for appetite regulation. Adiponectin, leptin, and resistin are adipocyte hormones and PPARs are diet (fatty acid) sensitive transcription factors that modulate glucose and fatty acid metabolism. The 13-lined ground squirrel (*Spermophilus tridecemlineatus*) is a natural model of binge and restrictive eating associated with hibernation and coincident alterations in metabolism. We have compared key regulators of metabolism and appetite, in adipose tissue from nonhibernating versus hibernating ground squirrels, with quantitative PCR. Amplification crossing points were determined for each gene and normalized to that of actin. Preliminary studies revealed adiponectin and PPAR alpha transcription were up-regulated 6 and 16-fold, respectively, while PPAR gamma transcription was downregulated by 3-fold during hibernation. Adiponectin results are consistent with observations by others that levels of this hormone are inversely related to fat mass, which would be predicted to decline during hibernation. Future studies will address dietary versus endogenous nutrient contributions to these observations.

U.55 The Effects of Traditional Spanish Culture on Women's Choices to Attend a University

Tabetha Maly
Advisor: Jason Kouba, International Education; Harry Nicklaus, Residence Life

The conservative former dictator of Spain, Francisco Franco, who ruled from the 1930's until the 1970's, spent the majority of his political career forming a political régime that reversed the advancement of Spanish women's rights. Equality of men and women by law did not take place in Spain until after his dictatorship in 1978; it was during this year that statistics show that more women than men were enrolled in university. Considering the statistics, literature presented about Spain still reports them as a "machista" society, a male-dominated one. Because of this, I wanted to research whether Spanish women face considerable challenges when attempting to attend a university because of the type of society they live in. While abroad, I completed research in several libraries to find the accurate statistics and current literature on the issue. Also, I interviewed several Spanish women, some who have attended the university and others who haven't, about their decisions on the subject. As a result of the project, I found that most Spanish women do not face many challenges in their attempts to attend a university; most of the people were supported by their families. A few claimed that if there were family members who weren't supportive, they were generally elderly, but this was rare. The statistics of university attendance since 1978 reveal that women stand firm in holding the majority numbers in the public universities in Spain. While the "machista" society may still exist according to the literature, the setbacks caused by Franco for the rights of women in education have, more or less, become up-to-date with the rest of the European society in much less time. These results and statistics reveal the strength of Spanish women that actually disproves a vision of the "machista" society and proves the strength of the Spanish woman.

U.56 Comparison of Hibernating and Non-hibernating 13-Lined Ground Squirrel Platelets

Peter Hordyk
Advisor: Scott Cooper, Biology

Human platelets, when refrigerated, undergo an irreversible change that leads to rapid clearance upon transfusion. As a result, platelet concentrates must be stored at room temperature to be useful for transfusion. Experiments performed on human and mouse platelets have established that refrigeration triggers an irreversible reorganization of the von Willebrand factor receptor complex on the surface of the platelet as well as removal of sialic acid sugar residues from membrane proteins. The removal of sialic acid exposes new sugar residues on oligosaccharides, which cause the platelets to be rapidly ingested by hepatic macrophages. Hibernating mammals such as the 13-lined ground squirrel, *Spermophilus tridecemlineatus*, are able to store their platelets in the cold for several months. The glycosylation state of platelets from hibernating and non-hibernating animals will be assessed through the use of fluorescently tagged sugar binding proteins called lectins. This experiment will allow us to determine if the oligosaccharides on the exterior of ground squirrel platelets are similar to those of human platelets. If similar, the experiments will allow the effect of temperature on glycosylation state to be determined for squirrel platelets. Understanding how the morphology of squirrel platelets change at different temperatures also provides insight into the fate of squirrel platelets during hibernation. Using washed platelets and DIC microscopy, platelet morphology was assessed. Platelets from non-hibernating ground squirrels were shown to have a discoid shape, while platelets from hibernating animals have circular bodies with projecting processes. Understanding how ground squirrel platelets are cold tolerant could lead to a method of refrigerated storage for human platelets.

U.57 Discovering a Stilbene Drug Mechanism of Action for Killing *Staphylococcus aureus*

Rachel Ignasiak
Advisor: William Schwan, Microbiology

Methicillin-resistant *Staphylococcus aureus* (MRSA) is a strain of *S. aureus* that is resistant to many antibiotics including methicillin. MRSA has become a serious issue because there are few antibiotics currently available to treat infections by this group. One stilbene analog that was synthesized from a plant, named SK-03-92, showed promising potential as an antibiotic for MRSA infections because the concentration of the drug necessary to kill MRSA was lower than the original stilbene compound. The goal of this project was to find the drug mechanism of action of SK-03-92. This experiment involved screening S. aureus mutant libraries using minimum inhibitory concentration tests (MIC) to find differences in the MIC compared to the unmutated parent strain. One hundred and twenty seven of the mutants have been screened, but none have shown antimicrobial activity that varies from the parent strain. Additional transposon mutants are being screened for differences in their MIC activity compared to the parent strain. If a mutant is discovered with an altered MIC, then follow up work will be done to determine the target of the SK-03-92 drug.

U.58 Analysis of Paleoethnobotanical Data at the Pirque Alto Site in the Cochabamba Valley of Bolivia: A Comparison to Primary and Secondary Centers

Ashley Schultz
Advisor: Timothy McAndrews, Sociology/Archaeology

This project focuses on comparing the botanical assemblages recovered from three archaeological sites associated with the Tiwanaku civilization of the central Andean highlands: the small rural community of Pirque Alto, the secondary center of Lukurmata, and the capital city Tiwanaku. The crop densities and ubiquities of maize, quinoa, and parenchyma tissue are systematically compared from the Formative Period and Middle Horizon components of each of these sites in order to illustrate how plant use changed through time at each locale. In order to illustrate finer grained diachronic analysis, change within the Formative Period and Middle Horizon was also examined. From this comparative study it was evident that the favoring of different crops that occurred between the periods and the sites could not be due to chance alone.

U.59 Developmental Toxicity of Vinclozolin in Zebrafish

Laura Erdman
Advisor: Tisha King-Heiden, Biology

One issue that has become of recent concern is the effect that environmental toxicants (ie: pesticides, herbicides, heavy metals) have on the health of wildlife as well as humans. These chemicals can impact organisms in a variety of ways, affecting almost every system in the body. Recent research has focused on the effects that chemical hormone disrupters have on embryonic development and reproductive health. I will use a model fungicide, vinclozolin, on embryonic zebrafish to observe the effects of developmental toxicity. Zebrafish are an ideal model because they have permeable embryos and undergo rapid embryonic development. This experiment will allow us to better understand the potentially hazardous effects this fungicide has on zebrafish development.

U.60 A 3-D Reconstruction of the Neolithic Age Mounded Archaeological Site, Ban Non Wat, Thailand

Curtis Webb
Advisor: Constance Arzigian, Sociology/Archaeology

The application of Geographic Information Systems (GIS) within the field of archaeology has become an increasingly important tool for the interpretation and analysis of archaeological sites. Previous archaeological studies that have utilized GIS applications include reconstructions of large features using 3D modeling, site predictive models, and environmental modeling. The archaeological site of Ban Non Wat in Northeast Thailand is one of many “moated” sites located in the Upper Mun Valley. These “moated” sites can be recognized by their encircling man-made earthworks, constructed during Iron Age occupations for water management purposes. Original excavations in this area were intended to investigate the cultural and political roots of the later civilizations of Angkor and Zhenla. Many sites in the area have shown evidence of Iron Age (300 BC - AD 300) occupations, however few have shown occupations that had spanned the Neolithic (3500 BC – 1500 BC), Bronze (1000 BC – 500 BC), and Iron Age periods; Ban Non Wat is one of these sites. In my research, I plan to use data acquired at the site of Ban Non Wat to reconstruct a 3D model of the Neolithic Layer of the site, as the original inhabitants would have occupied it. By creating this model, I will be able to better understand why this site was chosen to be occupied by the original inhabitants. I also believe that I will be able to show distribution of certain activity areas within the first occupations through association of artifact concentrations found in those areas. The efforts from my study may later be able to show geological changes at the sites in the Upper Mun Valley over time, as well as offer possible comparisons between other Neolithic Age sites in the area. Understanding these things will have a large effect on the understanding of settlement patterns of Neolithic Age peoples in this area.

U.61 Artificial Cranial Modification at the Carson Mound Site

Amanda Bailey
Advisor: Constance Arzigian, Sociology/Archaeology

The Carson Mound site is one of the largest prehistoric ceremonial centers in the Mississippi alluvial valley (Jay Johnson, personal communication 2009). In 1894 Cyrus Thomas, during his landmark publication on the mounds of eastern United States, included a map of this site that showed more than 80 mounds (Thomas 1894). Unfortunately most of the smaller mounds have been destroyed by more than 100 years of agriculture in the area. The prehistoric occupation at this site is buried between 20 and 30 cm of sterile flood deposits, and relatively few artifacts are found on the surface. During the excavations in the summer of 2008 70-80 burials where recovered. During the summer of 2009 burial pit four finished undergoing excavation with approximately 30 individuals recovered. Out of all the burials found at Carson that have been analyzed all but two are bundle burials. What is interesting about this type of burial mode is that the normal Mississippian burial mode differs from what we find at Carson. Most burials found at Mississippian sites are extended primary burials, although bundle burials and mass burials are found. During the excavation of Burial four two individuals showing signs of artificial cranial modification were identified. This paper attempts to explain the significance of the artificial cranial modification at the Carson Mound site.

U.62 Influence of STIs on Condom Use Behavior in College Age Women

Emily VanEyll and Laura Van Wyck
Advisor: Betsy Morgan, Psychology

Sexually transmitted infections (STIs) are an under-recognized health concern in the United States and have been labeled the “hidden epidemic” by the Center for Disease Control. Two-thirds of sexually active females report that they do not consistently use condoms. Women are more biologically susceptible to contracting a STI than men and women who use oral contraceptives are less likely to use condoms than women using other birth control measures. This study examined the impact that the acquisition of an STI has on condom use behavior by assessing individuals’ readiness to change a behavior. The Transtheoretical Model (TTM) of behavior change places individuals in one of the five stages: the precontemplation stage, contemplation stage, preparation stage, action stage, and the maintenance stage. An IRB approved web-based questionnaire yielded a final sample of 269 women who had indicated that they had engaged in heterosexual intercourse. In order to access a group of women more likely to have had an STI diagnosis, 41 women from a reproductive teen health clinic from the suburbs of a larger city were solicited. All of women were between the ages of 18 and 23. The questionnaire examined sexual history, current behavior, STI history, and intentions to change condom use behavior. Chi-square analyses showed statistical significance between women who have had an STI and those who have not and for the reported level of behavioral change (TTM) for condom use. In particular, a higher percentage of women who have had an STI were more likely to report that they are intending to use condoms in the future as compared to those women without previous STI diagnoses. However, non-STI women reported the highest condom use. The current study adds to psychology’s understanding of women’s sexual health behavior and may be useful in helping to design effective public health campaigns.

U.63 Investigating The Effects of Acute Applications of NT-3 in Promoting Cell Survival Signals in Spinal Cord Neurons Using Techniques in Immunofluorescence

Timothy Demmer and Kyle Wojcik
Advisors: Bradley Seebach and David Howard, Biology

Neuronal regrowth following an injury to the nervous system is partially dependant on the presence chemicals called neurotrophins. Neurotrophins are a class of growth factor proteins that activate specific signaling pathways in neurons that promote both cell survival and death (apoptosis). The neurotrophin NT-3 has been shown to induce signaling that prevents cell death in injuries to neonatal rat central nervous tissues and promotes cell survival when bound to the TrkC receptor. When NT-3 binds to the receptor p75NTR, it produces a complex biological signaling that generally promotes apoptotic signal cascades, leading to cell death. TrkC can form multimeric complexes with p75NTR that will discontinue the apoptotic signaling by p75NTR. In order to determine if an acute application of NT-3 causes an up-regulation in the expression of TrkC- p75NTR receptor complexes, we will expose neonatal rat spinal cord to high concentrations of NT-3. Immunofluorescent labeling of the TrkC and p75NTR receptors will allow us to quantify the number of p75NTR-TrkC complexes with confocal microscopy and compare to a control. Further understanding of the interactions between these receptors will help contribute to finding treatments for injuries and degenerative diseases of the nervous system.

U.64 We're Friends: Micromobilization Processes in a College Campus Religious Organization

Candice Bentley
Advisor: Timothy Gongaware, Sociology/Archaeology

When students go to college, they have a variety of organizations that they can choose to participate in. This study examines how students are recruited into religious organizations. This was a case study of a specific religious organization on a midwestern college campus and involved interviews and observations of the group. This study focused on the micromobilization processes of the religious organization with an emphasis on the recruitment and integration of students into the organization. It was found that students were largely recruited through personal networks that existed on campus as well as off campus. Students were also slowly integrated into the organization as they felt more comfortable.

U.65 Youth Culture in Coastal Ecuador

Erik Kahl
Advisor: Darlene Lake, Spanish

The youth of the world occupy their time differently depending upon their obligations at home, the environment in which they live, and the resources available to them. Inevitably, these are factors that shape the youth culture in any area. In any location, children will develop their own activities to occupy their time based upon the values and interests of their society. This research looks at the activities in which young people, ages 4-15, are involved in the coastal village of Bunche, Ecuador. This study provides insight into the youth culture from a series of interviews and discussion groups regarding the learning processes of their activities and a look at the rules and regulations of these activities. Four themes were discovered: the materialistic; the physical; cheers, songs, and chants; and games involving withstanding pain.

UNDERGRADUATE ORAL PRESENTATION ABSTRACTS

UR.1 The Relationship between Empowerment Care and Quality of Life among Assisted Living

Kirsten Kranz
Advisor: Dung Ngo, Psychology

In the United States the population of people over sixty-five will be increasing from thirteen percent of the population in 2008 to twenty percent of the population in 2030, with seventy percent of those sixty-five and older needing long-term care (LTC) for at least six months. Therefore, there is an increasing need for improving the quality of life for both current and future residents of LTC facilities. One LTC facility that has been rarely researched is assisted living facility (ALF). ALF's are more cost-effective than traditional nursing homes because they provide limited personal care services needed by patients to allow patients their independence. The purpose of this study is to examine patient empowerment care and how it affects a person's perception of his or her quality of life in assisted living facilities. Patient empowerment refers to the extent to which a person perceives the amount of control in his or her daily care. Eighty participants aged 65 or older currently living in assisted living facilities will be assessed. Participants will be asked to fill out questionnaires about their individual demographics, perceived quality of life, and empowerment care. The geriatric depression scale will also be administered. This study predicts that patient empowerment care will be positively correlated with quality of life for residents in assisted living facilities. Also, quality of life will be negatively correlated with depression score and positively correlated with marital status. If the hypotheses are supported, the implications of these findings may help administrators to find ways to improve quality of life for their residents.

UR.2 The Consequences When Nature and Society Collide and the Incompleteness of a Social-Self in William Shakespeare's *The Tempest*

Ben Gilbertson
Advisors: Natalie Eschenbaum and Bryan Kopp, English; William Zollweg, Sociology

With this research, an investigation is made regarding the power civilization (specifically the aspect of language) has over those who are unfamiliar with the civilized world and their reaction to it. Shakespeare's "The Tempest" allows us to examine the characters of Prospero, Caliban, and Miranda and the role language plays in their development and perspectives towards civilization. Also discussed is the incompleteness of a social-self from the perspectives of George Herbert Mead and Charles Horton Cooley, two sociologists who believed social interaction drove one's development as a human. It is argued that the lack of interaction Caliban and Miranda have with others (outside of Prospero) has limited their growth in a variety of aspects, but specifically socially.

UR.3 Stricture and Solidarity: Agency and Community Development in Huancarani, Bolivia

Jacob Wood
Advisor: Christine Hippert, Sociology/Archaeology

This article is the culmination of ethnographic research carried out in a small rural farming community called Huancarani and other contexts in the surrounding area of Cochabamba. The majority of this analysis is concerned with a small work-for-food group started in Huancarani known as the Pirwa. The general theme of the research is an answer to the question "what is it to develop?" The more specific research question is as follows: Can human beings act, collectively, to improve their lot, or must they once again accept that development is ineluctably determined by forces over which they have, in general, little or no control? The question of agency is important because it elucidates just how people may maneuver within a system of limitations (globalization) to improve their lives. Globalization is understood as a system of limitations in this article insofar as it reduces community sovereignty. The main phenomenon that this ethnographic analysis addresses is solidarity. Solidarity is how people unite in responsibility and in common interests. This analysis finds two possible ways of describing the phenomenon of solidarity that constitutes a single field (as in the Bourdieuian use) of possibilities. Solidarity, in its two uses, is the reply to the question of agency. An analytic description of solidarity is an analytic description of one way in which residents of Huancarani and members of the Pirwa maneuver within the terribly unequal system of globalization that provides the pretext for community action. Agency will not be defined as completely free or as fatalistic determinism but rather as possibilities afforded to people thrown into a system of globalization.

UR.4 A Study in Park Development: Creating Patagonia National Park

Elena Bantle
Advisor: Jo Arney, Political Science

In Southern Chile, near the bottom of the world, a new national park is in the stages of development. Upon completion, it will be Patagonia National Park, with over 750,000 acres under preservation. It is in the Aysén region of Chilean Patagonia. The proposed project seeks to illustrate the nature of the relationship between foreign private non-profit representatives and former users of the landscape in national park creation and administration at Patagonia National Park. The creation of the park is in the face of changing land uses (from livestock grazing to tourism) and multiple threats to the environment (including, but not limited to, large scale hydroelectric damming of major glacial rivers), and is unconventional in terms of traditional park development in that the Chilean government is not involved in the creation of the park. Rather, it is Conservación Patagónica, a nonprofit based in the United States that is leading the development. Local involvement and support will be detailed as obtained through participant observation, conversation with involved parties, and formal interviews, as will park administration approaches and plans as relayed by nonprofit staff. The empirical data accumulated from these methods and analysis of this data will be presented to provide for a better understanding of the manner in which initial stakeholders and park creators are working together in defense of this landscape, and will lend insight into this mode of environmental preservation and future park administration.

UR.5 Analyzing Meiosis in the *CDC*7 and *DBF*4 Mutant SK-1 Yeast

Shannon Kordus
Advisor: Anne Galbraith, Biology

Meiosis is a cellular division process that leads to the production of sperm and egg cells in humans. Any mistakes that occur during this process can lead to certain types of cancers and birth defects, making meiosis a very important process to study. The Baker's yeast, *Saccharomyces cerevisiae*, is a model organism to study meiosis. Baker's yeast contains homolog genes that are also found in humans. Two genes in particular, *CDC7* and *DBF4*, have known functions in other cellular processes but their role in meiosis is unknown. Three SK strains of yeast, a wild type, a *cdc7* mutant, and a *dbf4* mutant were analyzed for their ability to undergo meiosis at a low temperature of 22°C and a high temperature of 35°C. Currently, it has been found that neither of the mutants can undergo meiosis at 35°C. It is not clear where the mutants get "stuck" in meiosis. The mutants will be analyzed for their ability to undergo meiotic events, such as DNA replication, recombination, and cell division. The results of this analysis will be presented.

UR.6 The French Response to the United States' Financial Crisis: An Economic and Social Perspective

Katelynn Williams
Advisors: Barbara Rusterholz, Modern Languages; Laurie Strangman, Economics

The objective of this research was a comprehensive analysis of France's reaction to the global economic crisis, generated in large part by a breakdown of the United States' financial system, as depicted through major French and American newspapers. Research was conducted through reading, translating, and summarizing pertinent articles that characterized the French macroeconomic and societal responses to the global economic crisis. The research drew both quantitative and qualitative conclusions. Quantitative results included economic indicator data that exemplified the severe negative impact of the crisis on the French economy. Qualitative results included both a behavioral response (changes in consumer habits, active protestation) and a psychological response (job market anxiety, negative societal perception of banks and the Sarkozy administration.) France's economic and social perspective on the globalization of the United States' financial crisis ultimately called for a reformation of financial capitalism.

UR.7 Researching Hmong Culture

Pa Houa Vang and Yang Cha Thao
Advisor: Jennifer Kosiak, Mathematics

In the Coulee Region, 14% of area student population is Hmong, yet children's literature with accurate cultural facts or characters of Hmong decent is lacking. This presentation will discuss a collaborative project between a graduate researcher and undergraduate researchers that aims to produce a culturally accurate Hmong children's book written in both English and Hmong to be used in elementary classrooms. This presentation will focus on the development of relevant Hmong cultural facts which correspond to the story line. These facts which will be incorporated on each page

of the book have been gathered through interviews with Hmong elders in the local community. This presentation will highlight the critical findings from these interviews, as well as the current research on the Hmong culture.

UR.8 CD43 Expression in Lung Cancer

Valerie Zander
Collaborators: Steve Cash and Qiangwei Fu; Gundersen Lutheran Research
Advisor: Carl Simon Shelley, Microbiology

CD43 is a large trans-membrane protein that is normally only found on the surface of white blood cells. However, it has recently been shown that CD43 is also expressed by non-small cell (NSC) lung cancer. There are three major sub-classifications of non-small cell lung cancer; squamous, adenocarcinoma and large cell. In this experiment, cell lines representing CD43-positive NSC lung cancer were used to determine if repressing CD43 expression has potential therapeutic efficacy. Specifically, we have used lung cancer cells induced with short hairpin RNA (shRNA) to repress CD43. It has been determined that this repression does not cause the lung cancer cell lines to exhibit decreased proliferation, but it does increase susceptibility to attack by natural killer cells *in vitro*. It has also been shown that when incorporating three different strains of shRNA into a lung cancer cell, the shRNA will silence the CD43 gene so causing the expression of CD43 on the surface of lung cancer cells to decrease. CD43 functions predominantly as an anti-adhesive molecule; therefore, when CD43 expression decreases, natural killer cells are able to more readily adhere and destroy the cancer cells.

UR.9 A Ghost on Page, Stage, and Screen: A Characterization Comparative Analysis of *The Phantom of the Opera*

Sarah Kroth
Advisor: Beth Cherne, Theatre Arts

The purpose of this project is to research, analyze and compare the motives, wants and needs of several key characters in The Phantom of the Opera in different media: novel, stage production, and film for an independent study course with Beth Cherne- Associate Professor of directing and theatre studies. In the class setting, I, the student will further my research and analytical skills by compare/contrasts of the scripts and novel. In the International portion, I will view the original stage production and base a final comparative analysis project on the company's production versus the novel, and film.

UR.10 Women's Roles and Star Personas in the Films of Frank Capra

Mackenzie Deese
Advisor: Susan Crutchfield, English

The Golden Era of cinema (1930-1950) produced some of the most memorable and influential films throughout history. One of the most influential directors of this time was Frank Capra. In Capra's films audiences get a taste of hard-pressing traditional American values; however at the same time, Capra produced some of the most complex and progressive female characters during this time of female suppression. This study explores Capra's use of female characters and their roles in his films, as well as how the actresses' star personas affect the portrayal of the characters. More specifically, this research inquires how the star personas of actors, Barbara Stanwyck and Jean Arthur, affect the female characters they portray in Capra's films and how the actors' star personas affect how audiences respond to the characters as well as the films. Along with reading scholarly articles and books on the films and actors, research was conducted in January 2010 at the UCLA film archives, where the films were viewed in their original format along with additional research including, but not limited to, news reels of the films and actors, interviews with Capra, Stanwyck, and Arthur, documentaries, and audition tapes. The findings were analyzed in order to make correlations among the films, the actors' star personas, the female characters, and audience response. Interestingly, even though each actor had extremely different star personas, many correlations between Stanwyck and Arthur's career as well as private personas were found. Overall, it was found that Stanwyck and Arthur's star personas had a definite effect on the type of female characters they portrayed in Capra's films as well as audience response to those films.

UR.11 "Extreme Gusts Will Blow Out Fire and All": A Sociological Examination of Transformation in the *Taming of the Shrew*

Aaron Moritz
Advisor: Lalita Hogan, English

In the proposed presentation, I will draw on models derived from Sociology to discuss Shakespeare's Taming of the Shrew. In all compelling characters we find real humanity, glimpses of ourselves. It stands to reason then that Shakespeare, who has created some of history's most memorable characters, should be able to stand up to the scrutiny of a sociological perspective, a view that focuses on understanding human behavior. The proposed project will explore Petruccio's successful manipulation of Katherine. By comparing his methods to the "Sociological Imagination," we can legitimize her transformation as a fact of lived life represented fictionally. With control over environment, culture (the material and non-material products produced by people in response to their environment), society (a group who shares a culture), social structures, and individual behavior one can effectively control anyone. It is the reason boot camp works. It is the reason juniors in college no longer enjoy high school football games. In Taming of the Shrew, Shakespeare draws on popular taming narratives where the tamed is often a woman and the tamer a man. Expectedly, he refines the motif to draw the spectator into Kate's gain in being tamed, and her loss in not being tamed. I will examine the de-socialization and re-socialization of Katherine. Socialization occurs in three stages: imitation, play, and game (game being the most advanced). Some examination of George Herbert Mead's "Labeling Theory" will be necessary to explain Katherine's rapid submission.

UR.12 Trade or Migration? A Study of Ceramics at Tell Qarqur, Syria

Kyra Kaercher
Advisor: Mark Chavalas, History

Both trade and migration have been used by archaeologists to explain changes in the material cultures of particular areas. In particular, archaeologists have interpreted changes in the types of ceramics recovered at archaeological sites as evidence of either regional trade and/or the migration of people into the area. The appearance of one particular ceramic type, Red-Black Burnished Ware (RBBW) in portions of the ancient Near East circa 2500 B.C. has been explained by archaeologists as resulting from both trade and the migration of people. RBBW is characterized by a red-black, black-black, or grey-grey burnish, or finish, that is sometimes decorated with other motifs, or designs. This style of pottery is distinct from the local wares, but looks similar to ceramics found in Transcaucasia (present day Georgia, Armenia, Turkey, and Iran) (Rothman 2002). One site at which RBBW is found is the site of Tell Qarqur, Syria. While the earliest phases of settlement at Tell Qarqur remain deeply buried, northern Syria saw the emergence of the world's earliest agriculture and some of its first complex societies. The settlement grew rapidly in the early third millennium BC, and throughout the Bronze and Iron Ages (3000-500 BC) it was one of the principle cities in northwestern Syria. This paper will examine the form of pottery vessels recovered at Tell Qarqur to to determine their function in order to demonstrate whether the occurrence of this pottery at the site was due to trade or migration.

UR.13 Using Anomalous Tempered Ceramics to Illustrate Trade

Kyra Kaercher
Advisor: David Anderson, Sociology/Archaeology

Ceramics fragments are ubiquitous at archaeological sites in Egypt and provide archaeologists with data from which to investigate a number of research questions. One such avenue of research to which ceramics can shed light is the topic of trade in the past. The goal of this research project is to investigate and identify evidence of interregional trade between the site of el-Mahâsna and other areas of Egypt during the Predynastic period (4400-3000 B.C.) through an examination of anomalous tempered roughware ceramics. In particular, this paper will discuss the preliminary results of examining those roughware ceramics with grog and limestone tempers recovered during excavations from 1995 to 2002 by the el-Mahâsna Archaeological Project under the direction of Dr. David Anderson of the University of Wisconsin-La Crosse. Using comparative studies of Predynastic pottery throughout Upper Egypt, I hope to determine the reason, whether functional or trade from other regions of Egypt, for anomalous tempered sherds found at el-Mahâsna.

UR.14 Problematizing LGBT Inclusion in Study Abroad Programs

Ryan Clark
Advisor: Deborah Hoskins, Women's, Gender and Sexuality Studies

To engage in a study designed to gain a deeper understanding of the experience of study abroad programs for members of the LGBT community. By experiencing the study abroad program in Rome as an open member of the LGBT community and interviewing other members of this community who have studied abroad, I hope to uncover the challenges these individuals face and the strategies they employ to successfully complete their study abroad experience. The ultimate goal of this project is to identify specific strategies for addressing the challenges facing our respective LGBT students and support positive initiatives on a UW campus advocating student equity.

UR.15 Transformational Leadership and Outdoor Recreation

Josef Simon
Advisor: Mike Tollefson, Communication Studies

This research attempts to understand the transformational model of leadership in relation to outdoor recreational settings. The researcher participated in a university sponsored backpacking trip that was offered to college students through the campus recreation center. The researcher used participant observation while participating in the backpacking experience, then conducted an interview with each participant following the experience. Ten undergraduate students participated in the study. The researcher examined perceived outcomes experienced by participants, transactional appeals to leadership as reported by participants, and transformational appeals to leadership as reported by participants. The research concluded that outdoor leaders used transactional leadership as means to achieve transformational outcomes. Participants reported that attitude was the most important part of the leadership. Participants experienced three primary transformational outcomes: camaraderie, feelings of accomplishment, and personal growth. These outcomes are transformational in nature because they create new knowledge and understanding in participants.

UR.16 "But Doth Suffer a Sea-Change into Something Rich and Strange": *The Tempest* Subtext within *Grimus*

Nicholas Knobloch
Advisor: Lalita Hogan, English

Scholarship on Salman Rushdie's Grimus has focused on the influences of Dante's Inferno and Attar's Conference of the Birds. Out of the various critics that have written on Grimus, two voices stand out that lead to a possible new interpretation of Grimus. These two scholars are Uma Parameswaran and Ib Johansen. Johansen's work points toward the role of word-play and language within the novel while Parameswaran alludes to the background structure of Shakespeare's Tempest in the novel. These two ideas will serve as a new basis towards understanding the novel through an interpretation of the Tempest and its major themes as paradigms to examine and critique Grimus. Postcolonial and psychoanalytic criticisms of the Tempest will serve as the foundation of a new critique of Grimus that breaks from previous scholarship demonstrating a complexity to the novel that goes unremarked in previous criticism. My deeper explorations of the Tempest subtext in Grimus will contribute to the centrality of this novel in the Rushdie Canon. This novel, unfortunately, has been previously characterized by scholars as being merely experimental and ultimately an unsuccessful work of literature. Understanding the intertextuality within the novel reveals Rushdie's philosophical and intellectual backgrounds and reveals the novel as a thought experiment characterized as a Menippean Satire that unfolds Rushdie's specific construction of post-colonialism. Concurring with Catherine Cundy's brief comment on the importance of Grimus, this foregrounding of Grimus can serve as the foundation for a new criticism of Rushdie's extensive literature, more specifically Midnights Children, Shame, and Satanic Verses.

UR.17 A Tale of Two Campuses: Are Students at Goethe University Frankfurt am Main Truly More Passionate and Socially Engaged than University of Wisconsin–La Crosse Students?

Rourke Decker and Kati Fanning
Advisor: Dean Stroud, Modern Languages

Among the University of Wisconsin–La Crosse Student Association (UWLSA) leadership there exists a conception that Allgemeiner Studierendenausschuss (AStA), the student parliament at Goethe University Frankfurt am Main (GU), plays a pivotal role in mobilizing GU students to participate in mass protests against perceived infringements of their

human rights. Exemplifying the apparent passion of GU students, nearly three thousand individuals attended a recent demonstration on the GU campus to advocate for free higher education nationwide. By contrast, UW-L students do not appear to be so inclined to demonstrate en masse: A recent rally against UW-L's continued dependence on its campus coal plant was deemed a resounding success despite the fact that only a few hundred students attended. UWLSA views this seeming relative apathy with concern and believes that insight into possible solutions may be gleaned through examination of AStA's motivational methodologies and student perceptions thereof. Accordingly, this study explores the relationship between AStA and the GU student body through written surveys and personal interviews of GU students. Examination of data collected reveals that preconceived notions held by UWLSA leadership may be fundamentally flawed and require reevaluation. Specifically, 1) demonstration turnouts on the GU campus are reflective not of greater GU student-body engagement but of nationwide recruitment; 2) GU students do not present a united front on issues, but rather are divided along political party and departmental lines; and 3) students in many departments believe that the leftist-leaning AStA not only fails to represent their interests, it may in fact be inimical to them. This study forms a foundation for future studies that may facilitate the development of strategies to improve student body solidarity and engagement in university communities around the globe.

UR.18 Understanding How Hybridization is Altered Near Surfaces

Sarah Schreiner
Advisor: Aric Opdahl, Chemistry

DNA microarrays and other applications of surface chemistry are becoming more widespread in clinical and biological diagnostics. Understanding the underlying physical properties of short DNA probes bound to surfaces can lead to advances in these technologies. In our fundamental studies, we have found that interactions between nucleotides in the DNA probe and the surface actually weaken the secondary structure of double stranded DNA hybrids and single stranded DNA hairpins. This weakened secondary structure was characterized by a series of experiments comparing the properties of DNA hybrids as a function of their immobilized conformation. In related experiments, have found that a string of m adenine nucleotides (Am), incorporated at the end of a short nucleotide DNA probe (P) sequence, can act as an attachment group for linking DNA to gold surfaces. The adenine part of the Am-P strand will preferentially attach to the gold surface and force the P component into an upright conformation. This upright conformation of the P component is well suited for efficient hybridization with solution targets DNA. We found that variations in the surface density of these DNA probes can be minimized by using this method of attachment. Additionally, we found that a wide range of probe-to-probe lateral spacing and controlled hybridization can be achieved by co-immobilizing the probe DNA with an additional strand of adenine nucleotides. Together, these results are important because they are a step towards the next generation of quantitative DNA microarrays and for emerging applications which rely on DNA attached to a surface in a specific conformation.

UR.19 The Power of Place: Concepts of Space and Association in La Crosse History and Environment

Adam Bonikowske
Advisor: Victor Macias-Gonzales, History

Throughout La Crosse's history, the city's residents have used the environment to construct their community identity, culturally, psychologically, and physically. Individuals' accounts of La Crosse's settlement and early development incorporated references to nature and the environment, and reflected prevailing cultural attitudes to nature that were also manifested in their ideas about education, leisure, religion, economic activity, and politics. This project focuses specifically on economics, education, and leisure to explore the local development of attitudes or mentalities about the landscape. The narratives also respond to areas of the environment that do or do not concern the individual or the public; therefore, implying what areas of the landscape possessed a "cultural heritage value." When La Crosse citizens defined an object or place in this manner, they expressed emotional attachment, associating community values with an area of the landscape. Patterns of land usage, local folklore, traditions, and memory are all important aspects that explain the values and behaviors the community of La Crosse has shared and has held in its past. The environment of La Crosse has transformed with settlement and modernization, shifting a nineteenth-century community identity that valued progressive economics and education into a twentieth-century society that publicly and legally preserved areas of the landscape for innovative purposes in recreation and education.

UR.20 Building Bridges in Bunche

Erik Kahl
Advisor: Darlene Lake, Modern Languages

Although students around the world attend school to gain knowledge and contribute to society, service also reinforces their role in their community. The combination of education and service work leaves a lasting impression on an individual, a community, a country, and, ultimately, the world. This article examines the impact of service training on a society with a basic concept of community planning and service. Fostering relationships in the classrooms of a small school on the coast of Ecuador enabled the community members to form the foundations of a service-oriented attitude through first-hand experience. Young people of the village began to experience the enjoyment and pride that define service based projects. The ability to sustain a service-oriented disposition reflects upon the teachings and the overall sense of community, inspired by its youth.

UR.21 A Robustness Study of N-Mixture Models in Estimating Animal Population Size

Michael Hemmer
Advisor: Sherwin Toribio, Mathematics

Estimating animal population size is a crucial statistical application that is significant on a multitude of levels. Environmental groups and governmental policies across the world depend upon the estimation of this critical parameter. There are several ways to calculate the population size of a species, such as the "Capture, Recapture" method, but there are some animals that are inconvenient to capture. A new method has been proposed, initially by Carroll and Lombard in 1985 and their procedure was built upon by J. Andrew Royle in 2004, which provides a way to estimate animal population size by merely recording observations of the animals at randomly selected sites in a region. However, this procedure of "N-Mixture Models" is based upon the assumption that the population size of the animal species of interest at the different sampling sites remains the same throughout the sampling period. This closure assumption may not necessarily be true, due to factors such as migration or a fluctuating mortality rate. The primary objective of this research is to examine the population size estimates obtained using Royle's method, when the closure assumption is not true. If our obtained estimates vary significantly from Royle's, then the conclusions reached in his article may not be entirely valid. Extensive simulation will be conducted by using the Monte Carlo Simulation technique. The statistical computing software R will be utilized throughout the research study. In this presentation, I aim to convey the concept of N-Mixture Models, to discuss the results of the study and whether or not N-Mixture Models are an appropriate method of estimating animal population size.

UR.22 The Relation Between Psychological Gender, Sex, Sexual Orientation, and Social & Self-Acceptance

Jason Emmons
Advisor: Tracie Blumentritt, Psychology

Psychological gender is a mental construct based on social stereotypes of what it means to be masculine or feminine. 200 individuals – 50 heterosexual males, 50 heterosexual females, 50 homosexual males, and 50 homosexual females – were given a psychological gender based on their masculinity and femininity scores as derived from the Bem Sex Role Inventory (Bem, 1974). In the same survey participants were given autonomy and self-acceptance scores derived from Carol Ryff's 14-Item Scales of Psychological Well-Being (Ryff, 2008). Based on their biological sex and their psychological gender participants were separated into either a gender-congruent or gender-incongruent classification. They were then divided further based on their sexual orientation in order to answer the study's primary question. Will gender-incongruent homosexuals have higher autonomy and self-acceptance scores than gender-incongruent heterosexuals compared to their gender-congruent counterparts? Using Qualtrics the survey was formatted to include every item from the BSRI, each item from Carol Ryff's Autonomy and Self-Acceptance scales, and a four-item demographics section, generating a total of 92 items. The data were transferred into SPSS for analysis. The purpose of this research study is to assess the differences in self-perceived well-being between homosexual and heterosexual men and women who do and do not conform to societal expectations of gender and to explain the possible reasons for these differences in social/self-acceptance based on gender, sex, and sexual orientation.

UNDERGRADUATE EXHIBIT PRESENTATION ABSTRACTS

Valhalla Hall:
9:00 am-10:45am

E.1 Integration of Printmaking and Photography in Florence, Italy

Bethany Rahn
Advisor: Joel Elgin, Art

This proposal focused on different forms of printmaking through photomechanical processes that integrated the two disciplines I have strongly focused on, photography and printmaking. I took courses focusing on serigraphy-silkscreen, book arts, experimental photography and the letterpress. Traveling to Florence, Italy was an essential part of my experience because of the curriculum at my host institute, Santa Reparata International School of Art as well as the many galleries, and museums that influenced my work. Florence has help shape my artistic interests and given me a cultural diverse experience that has provided a better understanding of these art forms and has guided me in my growth as an artist and person.

E.2 Projecting a 2-Dimensional Panorama in a 3-Dimensional Display

Derek Kockler
Advisor: Linda Levinson, Art

Through most of its history, Photography has been limited to two dimensions. Several techniques have been developed to give the perception of three dimensions, but almost exclusively, the photograph has remained a two dimensional planar image. This project aims to display a 360 degree panorama in its original context, 360 degrees. Large prints of 360 degree panoramas containing 35-55 images digitally stitched together were printed up to 12 feet large. The images were displayed on the inside of a suspended ring measuring roughly four feet in diameter. This gives the viewer the perception of actually being at the scene which is originally a 3 dimensional, 360 degree environment.

E.3 How Meditation and Art Contribute to Each Other

Cedarose Siemon
Advisor: Jennifer Terpstra, Art

The relationships between meditation and art have received little attention from contemporary American art institutions. Meditation and art share central practices and goals: long-term training, patient achievement, heightened perception, mounting attentiveness, and expanding appreciation. The purpose of this research was to investigate what meditation and art have to contribute to one another. One of the few developed art forms that include meditation is Zen painting. Zen is a religion based on meditation throughout each moment; daily activities in a Zen Center are prescribed to facilitate meditation. Zen painting is an artistic act of meditation that communicates complex realizations through a simple Japanese character. I explored how meditation and art contribute to each other through a week of intensive meditation in silence, along with teachings and Zen rituals. After this week of immersion, I was taught to incorporate meditation into the creation of classical and free Zen painting. I received this training in meditation and Zen painting from the internationally respected Japanese Zen painter and teacher, Kazuaki Tanahashi, at the Upaya Zen Center in Santa Fe, NM. In my research experience I found that meditation has many contributions for art and art can act as a vehicle for meditation. Meditation provides the training to help an artist to decelerate and increase attentiveness during the construction and viewing of art; tools for the central practices and goals of art. Art is a way for meditation to be practiced in creation and action. Both meditation and art benefit each other. A series of classical and free Zen paintings with written exposition are being compiled for a comprehensive exhibition in the UW-La Crosse Center for the Arts Gallery, for this summer. The presentation will be an artistic and meditative offering intended to share Eastern methodologies and perspectives on art and life with the viewers.

E.4 Beyond the Letterpress: Text, Image and the Artists' Book Through a Female Perspective

Rebecca DeLapp
Advisor: Joel Elgin, Art

The letterpress has an important history in traditional bookmaking and the art of fine typography. The role of the letterpress remains connected to the tradition of handmade artists' books. Since the origin of the printed set book, artists have embraced this media to complement their visual images and impart the power of text in their work. The letterpress printing process requires a high degree of craftsmanship, but in the right hands, letterpress is a key piece of fine typography and bookmaking. Women have been involved in printing and the making of books ever since these crafts were first developed. Even before the invention of movable type, there was a strong tradition of women producing manuscripts in western European religious houses. Through my work restoring an original Vandercook printing press and exploration into the methods of letterpress printing, I was able to experience textual art forms and gain a passion for book arts. By exploring the origins of bookmaking at Trinity College in Dublin, Ireland and studying multiple bookmaking techniques, both traditional and contemporary, I have gained firsthand knowledge and experience with the letterpress and its various applications involving the intricate juxtaposition of text and image. As a culmination of this experience, I have produced an artists' book detailing the history and process of printing and bookmaking in Ireland. As a female artist, my book reflects my unique contemporary perspective.

GRADUATE STUDENT ABSTRACTS

GRADUATE POSTER PRESENTATION ABSTRACTS

Poster Session A
Valhalla Hall: 9:00am-10:45am

G.1 The Effect of β-alanine Supplementation on Power Performance during Repeated Sprint Activity

Andrew Jagim
Advisor: Glenn Wright, Exercise and Sports Science

Previous research has shown that beta-alanine supplementation can increase carnosine levels within the muscle. Carnosine is an intramuscular buffer and has been linked to improvements in performance, specifically during bouts of high intensity exercise. Therefore the purpose of this study was to examine the effect of beta-alanine supplementation (BA) on sprint endurance at two different supramaximal intensities. Twenty-one male rugby players (n=4), wrestlers (n=11) and recreationally trained athletes (n=6) from the University of Wisconsin – La Crosse participated in a double blind, placebo controlled study. Subjects performed an incremental VO_2 max test to maximum and two sprint to failure tests set at 115% and 140% of their VO_2 max on a motorized treadmill (PRE) followed by a 5 week supplementation period. During this time subjects ingested either a beta-alanine supplement (Intra X cell, Athletic Edge Nutrition, Miami FL) or placebo (PLA) with meals. Subjects ingested 4g /day of BA and PLA during the first week and 6g/day the following 4 weeks. Following the last dose of the 5 week supplementation period (within 2 days of last dose), subjects again performed the 2 sprint to failure tests (POST). Capillary blood samples were taken before and after each sprint to measure lactate values. Results showed no improvements in time to exhaustion for the 115% or 140% sprints in either group from PRE to POST supplementation. From these results we concluded that beta-alanine supplementation did not have any effect on sprint endurance at supramaximal intensities.

G.2 Regulation of *fimB* and *fimE* Genes of Uropathogenic *Escherichia coli* by *OmpR*

Ann Rentschler
Advisor: William Schwan, Microbiology

Uropathogenic *Escherichia coli* (UPEC) cause more than 90% of all human urinary tract infections (UTIs). In the United States, UTIs account for close to 7 million office visits and 100,000 hospitalizations per year. Type 1 pili on the surface of UPEC allow the cells to adhere to and invade bladder epithelial cells. The *fimB* and *fimE* gene products encode proteins that act as recombinases to position an invertible element containing the promoter for the main structural subunit of the type 1 pili. In order to cause UTIs, UPEC must be able to respond to changes in environmental pH and osmolality. The EnvZ/OmpR two-component regulatory system is involved in acid tolerance and osmoregulation in *E. coli*. The OmpR protein may bind to the *fimB* or *fimE* promoter regions causing the bacteria to be either piliated or nonpiliated. This study was aimed at determining the relative amounts of *ompR* transcripts in a clinical isolate of UPEC. The UPEC strain NU149 was grown in different acidic and osmolality environments. Total RNAs were collected and converted to cDNAs. Polymerase chain reactions (PCR) were performed to determine the amount of *ompR* transcripts in UPEC grown under these different environmental conditions. The PCR results showed the internal *ftsZ* control was expressed equally well under the growth conditions used. However, it appears the level of *ompR* transcripts increases in a low pH/high salt environment. DNase footprints are currently being performed to determine if *OmpR* binds directly to either the *fimB* or fimE promoter regions. The work described here could help in the understanding of the mechanisms by which UPEC switch between piliated and nonpiliated states in response to an acidic pH/high osmolality environment similar to human kidneys.

G.3 Mercury Concentration Variability among Larval Dragonflies Collected from U.S. National Park Units of the Western Great Lakes Region

Sean Bailey
Advisor: Mark Sandheinrich, Biology

Aquatic ecosystems within the Great Lakes region include landscapes where microbially synthesized methylmercury, a highly toxic compound, may reach concentrations in aquatic food webs resulting in potentially harmful exposures to wildlife and humans. Predatory larval dragonflies are abundant in such habitats, and are important in the trophic transfer of mercury to fish, songbirds, and other wildlife. Thus, larval dragonflies may be useful as biological sentinels for the monitoring of methylmercury contamination. Pre-emergent larval dragonflies were collected in late spring of 2008 and 2009 in six National Park areas within the western Great Lakes region. Larvae were sampled using hand-held nets in

near-shore habitats, identified to species and sex, measured and weighed, dried, and analyzed for both total mercury (THg) and methylmercury (MeHg). Initial results of 127 individually analyzed larval clubtails (Gomphidae) suggest MeHg concentration in dragonflies varies by lake and species, but not between sexes within a species. Concentrations for THg and MeHg ranged between 20.7 – 258.7 ng/g dry weight and 3.7 – 158.2 ng/g dry weight, respectively. The mean (± SD) percentage of MeHg as THg in the dragonflies was 75.2 ± 25.2%. Of the 8 species of gomphid dragonflies analyzed, mean MeHg concentration was lowest in *Progomphus obscurus*, the "Common Sanddragon," (34.2 ± 9.1 ng/g dry weight) and greatest in *Hagenius brevistylus*, the "Dragonhunter," (61.9 ± 23.1 ng/g dry weight), one of the largest dragonflies in North America and a likely intra-guild predators of other gomphid species. The most ubiquitous species was *Gomphus spicatus*, the "Dusky Clubtail;" it was collected at 4 of the 6 lakes in this initial analysis. This data has the potential to aid in the development of a cost-effective dragonfly monitoring protocol for the assessment of MeHg and other contaminants.

G.4 Reading and Math Self-Efficacy

Amber Voit and Jenna Alford
Advisor: Jocelyn Newton, School Psychology

Academic self-efficacy can have a significant impact on school achievement. Through self-efficacy awareness, school psychologists and other school professionals will be able to identify certain populations that are at-risk for low self-efficacy. With the purpose of identifying at-risk populations, this study examined the difference in academic self-efficacy between males and females and third and fifth grade students in the areas of reading and math. The results of this study indicated that there were no differences in reading and math self-efficacy as a function of grade level or gender.

G.5 CBM in Mathematics: Predicting Future Performance on State Assessments

Katherine Stinson
Advisor: Rob Dixon, School Psychology

Curriculum-Based Measures (CBMs) in reading and their relationship to state standardized tests have been established and an important feature of CBMs. This study will examine the predictive relationship of CBMs (i.e. computation and application) in mathematics on a state standardized assessment for elementary students. This will assist educators in the early identification of problems and the adjusting of their instructional practices in order to promote proficiency on state assessments.

G.6 The Effects of Kinesio Tape on Strength and Activation of the Middle Deltoid Muscle

Jillian Thompson
Advisors: Mark Gibson, Tom Kernozek, Scott Doberstein and Glenn Wright; Human Performance

The purpose of the study was to determine the effects of three taping conditions on strength and activation of the middle deltoid muscle in healthy, college aged individuals. It has been claimed that Kinesio® Tape has muscular facilitation effects when applied properly over a weakened muscle in the event of injury or muscular imbalance. Twenty-five healthy individuals between the ages of 19 and 24 participated in the study. Surface Electromyography (EMG) of the middle deltoid muscle on the dominant arm was recorded. Torque produced during shoulder abduction was concurrently measured with the EMG using an isokinetic dynamometer. After performing a recommended upper-body warm up, the participants performed three maximal voluntary isometric contractions (MVIC). Three taping conditions were applied and tested individually in a randomized order. The Taping conditions were Kinesio® Taped (KT), Leuko Taped (LT), and untaped (UT). The participants performed three maximal concentric and eccentric shoulder abduction contractions against the isokinetic dynamometer. The range of motion was 0 to 90 degrees of shoulder abduction. The data for this study were recently collected and results are not yet available. Summarized results will be available at the Celebration. Possible results of the study may conclude that Kinesio® Tape does or does not facilitate muscular contraction compared to the other taping conditions. These results will be important for many health care professionals when deciding to include Kinesio® Taping and determining how it will be used in their treatment plans.

Poster Session B
Valhalla Hall: 11:00am-12:45pm

G.7 Walnut Type Affects the Response to Occlusion-Induced Vasodilation Following a High Fat Meal in Dyslipidemic Humans

Peter Fitschen
Advisor: Margaret Maher, Biology

Endothelial dysfunction, resulting in impaired vasodilation, has been shown in persons with dyslipidemia. English walnuts (EW) improve such impaired vasodilation following a high fat meal, compared to other fat sources such as olive oil. Our lab has studied the effects of both EW and black walnuts (BW) on plasma lipids, but the effect of BW on endothelial function has not been studied. Thus, we compared the effects of 40 g BW versus EW with a high fat meal on vasodilation. Six dyslipidemic (LDL over 130 mg/dl) subjects were tested on two days at least one week apart. On test days, subjects ate a standardized breakfast at 7:00 am and arrived at noon for vasodilation testing. Baseline ultrasound of the brachial artery before and after 4.5 minute occlusion was followed by high fat meal consumption. Four hours post-meal, vasodilation testing was repeated. The high fat meal impaired the vasodilation response in both groups as expected, but the mean pre-post meal vasodilation difference was significantly ($p<0.02$) greater (-8.7 ± 2.9) with BW versus EW (-1.5 ± 3.1). Changes in after-occlusion blood flow rate (cm/s) following the high fat meal were not significantly different between EW and BW. Our results indicate that EW improved endothelial dysfunction compared to BW following a high fat meal in dyslipidemic subjects.

G.8 The Effect of Riparian Vegetation on the Spatial Distribution of Slimy Sculpin in Southwestern Wisconsin Streams

Katri Laukkanen
Advisor: Mark Sandheinrich, Biology

The distribution of stream fish, such as freshwater sculpin (*Cottus* spp.), are frequently associated with the quantity and quality of macroinvertebrate prey. The density and composition of aquatic macroinvertebrates, in turn, are influenced by the presence of riparian vegetation, which may provide a potential source of allochthonous organic matter used by shredders and collectors. Conversely, the overhead canopy of riparian forests may shade streams, reducing the amount of photosynthetically active radiation reaching stream beds and the autochthonous production of food resources used by grazing macroinvertebrates. We hypothesized that open canopies would increase primary and secondary production in riffles and result in greater densities of sculpin than in riffles underlying closed canopies. The quantity of periphyton and macroinvertebrates, and the density and size-frequency distribution of sculpin were monitored for three months in riffles with open or closed canopy in three streams in the Coon Creek watershed. Initial analysis of the data indicates that the density of sculpin was not significantly different between riffles with open or closed canopies. However, the size-frequency distribution of sculpin varied among sites within each of the three stream systems; a larger proportion of juvenile sculpin were collected in riffles with open canopies. There was not a significant difference in the standing crop of periphyton (Chl a) between riffles with open or closed canopies. The composition and density of macroinvertebrates at these sites have yet to be analyzed. These initial results suggest that the quantity of photosynthetically active radiation may not directly influence the density of sculpins, but may indirectly influence the size distribution of sculpins at each site.

G.9 The Effect of Hibernation on Platelet and White Blood Cell Fate and Function in Thirteen-Lined Ground Squirrels

Karl Richters
Advisor: Scott Cooper, Biology

Thirteen-lined ground squirrels (*Spermophilus tridecemlineatus*) experience a dramatic decrease in body temperature and heart rate during hibernation. These extreme conditions would likely cause human platelets to clot due to low blood flow rate and pressure. We have found that ground squirrels decrease their circulating platelet and leukocyte counts during hibernation, likely to reduce the risk of clotting. Previous research has shown that chilled human and mouse platelets are rapidly cleared from circulation. However, upon arousal from torpor, ground squirrel platelets are rapidly released into circulation from their storage site in the spleen and persist for several days until new platelet synthesis

begins. Flourescently labeled platelets were incubated at 4˚C or 37˚C and reinjected into autologous ground squirrels. Clearance rates of both warm and chilled platelets were the same. Identification of protective factors that prevent rapid clearance of chilled platelets may ultimately lead to the ability to refrigerate human platelet concentrates.

G.10 Family Involvement of Hmong Parents

Kelly Wulff Plumb
Advisor: Jocelyn Newton, School Psychology

The purpose of this poster presentation is to increase awareness of parent involvement of Hmong parents. We compared Hmong and Caucasian parents on self-reported aspects of family involvement, including Home-School communication, Home-based involvement, and School-based involvement. Data was collected using the self-report Family Involvement Questionnaire. The data was analyzed using an analysis of variance. Results of the study indicated that there were significant differences in family involvement between Hmong and Caucasian parents in the area of Home-based involvement.

G.11 Expanding Opportunities for Student Engagement: The Case of Single-Sex Classes

Megan Fostner
Advisor: Rob Dixon, School Psychology

The current study examines the effects of single-sex classes within a co-educational school environment on student engagement. Student engagement, teacher reports, and academic data will be collected and the preliminary results from the first half of the year will be presented. Differences between the three groups will be discussed, focusing on student engagement. Discovering the differences in learning that occur between the students will determine the benefits of single-sex classes and their future use.

G.12 Emotions in Adolescence: Exploring Dysfunctional Emotion Regulation

Sarah Coolidge
Advisor: Rob Dixon, School Psychology

As the need for prevention and intervention strategies targeting adolescent mental health within the educational system continues to rise, investigators have focused on dysfunctional patterns of conscious, cognitive emotion regulation as a precursor to mood and anxiety disorders. This study examines differences in cognitive emotion regulation across identified subgroups of adolescents. The future role of the school psychologist in addressing these dysfunctional patterns will be discussed as well as future research directions.

G.13 Motivation: Goal Orientation among Middle School Students

Sara Byrne
Advisor: Rob Dixon, School Psychology

Motivation can determine the time, effort, and interest students put towards a task, and can determine how successful they are academically. Achievement goals (i.e., mastery, performance approach and avoidance) have been studied regarding the impact on the learning outcomes for high school and college students. This study will extend goal orientations to middle school students to determine developmental and/or gender differences. Implications for educators and school psychologists working in the middle school will be discussed.

G.14 The Relationship Between Kindergarteners' Social Skills and Literacy Development

Lisa Tlougan
Advisor: Rob Dixon, School Psychology

The purpose of this poster presentation is to inform session attendees of the relationship between kindergarteners' social skills and their literacy development. Kindergarten teachers completed the Social Skills Improvement System (SSIS) (Gresham & Elliott, 2008) on the participating students as a measure of the students' social skills. Correlations between social skills and literacy scores on Dynamic Indicators of Basic Early Literacy Skills (DIBELS) were computed to

determine the significance of the relationship between social skills and literacy skills development among kindergarten students. Results of the analyses indicated social skills were significantly related to literacy skills development.

GRADUATE ORAL PRESENTATION ABSTRACTS

GRAD.1 Validation of an Optical Encoder and Power Prediction Equations While Performing A Smith Machine Jump Squat on a Force Plate

Andrew Pustina
Advisor: Glenn Wright, Exercise and Sports Science

The purpose of this study was twofold: first, it was to determine the validity of a rotary encoder at measuring power and velocity; second, it was to expand the validity of various power prediction equations. Thirty male and 30 female subjects performed a smith machine jump squat with loads of 20%, 40%, and 60% of their body weight on a barbell that was positioned across their shoulders. Each jump squat was simultaneously monitored using a force plate, a rotary encoder, and a contact mat. Concentric peak power, average power, peak velocity, and average velocity were calculated using the time and position data derived from the rotary encoder, while the vertical ground reaction force data was recorded from the force plate. The contact mat and power prediction equations estimated peak power. All calculations were compared to the criterion reference, the force plate. This investigation indicates that the rotary encoder is not a valid means of measuring peak power, average power, peak velocity, or average velocity when compared to the criterion reference.

GRAD.2 Blood Ammonium and Lactate Levels During Squat Exercise

Matthew Rogatzki
Advisor: Glenn Wright, Exercise and Sports Science

Blood lactate levels have long been considered the gold standard for measuring fatigue. Recent reports have found that the accumulation of ammonium in the blood also correlates well with fatigue. The first purpose of our study was to determine whether blood lactate or ammonium is a better indicator of relative fatigue during the parallel back squat exercise and the second purpose was to determine if different set and rep schemes (equated to the same volume) of the squat affected the accumulation of ammonium and lactate in venous blood differently. Male subjects (age 21.4 ±1.6) performed a one repetition maximum squat before laboratory testing. After the max squat was obtained each subject performed three different squat protocols: 5x5 at 85% max, 3x10 at 70% max, and 2x20 at 53% max in separate sessions with at least 72 hours of rest between each workout. Venous blood was taken from the antecubital vein at rest and five minutes after the last set of exercise was completed. The venous blood was then analyzed for blood lactate and blood ammonium. Subjects were asked what their rating of perceived exertion was on their last set after each workout using the modified Borg Scale. Incomplete results have shown that 2 sets of 20 reps cause that greatest amount of ammonium accumulation in venous blood while 5 sets of 5 reps cause the least amount of ammonium accumulation in venous blood.

GRAD.3 A Qualitative Study of Students' Perceptions of the Transfer Support Systems Offered at Two- and Four-Year Institutions

Teri Passow
Advisor: Chris Bakkum, Student Affairs Administration in Higher Education

The purpose of this research was to gain a deeper understanding of perceptions students have of the support systems that are offered to them during the transfer process. Specifically, the researcher examined how students who are transferring into a four-year university from a two-year college perceive the services that are offered at both institutions. By gaining a deeper understanding of these perceptions, institutions will be better able to serve this unique group of students in the future.

GRAD.4 Connecting Hmong Culture and Education through Children's Literature

Maggie Lee McHugh
Advisor: Jennifer Kosiak, Mathematics

Research has shown that connecting children's literature with content areas increases positive attitudes and interest in subjects such as mathematics. This presentation will discuss a collaborative project between a graduate researcher and undergraduate researchers that aims to produce a culturally accurate Hmong children's book. Due to a lack of children's

literature which highlights Hmong culture, the graduate researcher has written a story focused on the importance of gardening in the Hmong culture. This presentation will focus on the development of the book and a teacher curriculum guide, as well as its relationship to cultural awareness. As the movement to incorporate mathematics into literacy lessons gains popularity, this cultural books extends that mission by creating curriculum tied to the book which highlights take-away models such as subtraction and fractions. This curriculum will be presented both in English and in Hmong in the form of digital podcasts.

2009 RECIPIENTS OF UNDERGRADUATE RESEARCH AND CREATIVITY GRANTS

Name	Department	Mentor	Title
Bailey, Amanda	Archaeology	Constance Arzigian	*Burial Pit Analysis of the Carson Mound Site*
Bantle, Elena	Political Science	Jo Arney	*A Study in Park Establishment: Creating Patagonia National Park*
Belitz, Katie; Frank, Anthony	Psychology	Bart VanVoorhis	*The Influence of the Media on Food Consumption and Body Image*
Bentley, Candice	Archaeology	Tim Gongaware	*College Campus Organizations: A Case Study in Micromobilization Processes*
Berndt, Christa; Brockman, Brett; Wasemiller, Kayla	Biology	Nick Downey	*Proteins Involved in the Segregation of the Mitochondrial Genome of Trypanosoma brucei*
Bobylak, Brendan; Imming, Laura	Psychology	Dung Ngo	*The Mediation Effects of Acculturation on Well-Being in Asian International Students*
Bonikowske, Adam	History	Victor Macias-Gonzales	*Community Identity in the La Crosse River Valley Landscape: A Historical and Environmental Analysis*
Brummond, Hillary; Brunette, Benjamin	Mathematics	Ted Wendt	*Modeling and Ranking Driver Performance*
Carthey, Patrick	Archaeology	Christine Hippert	*Field Study in Cochabamba*
Day, Molly; Ploen, Emily	Exercise and Sports Science	Cordial Gillette	*The Effectiveness of Cryotherapy in the Treatment of Exercise-Induced Muscle Soreness*
Deese, Mackenzie	English	Susan Crutchfield	*A Study of the Woman's Role and Star Persona in the Films of Frank Capra*
Depies, Andrew	English	Lalita Hogan	*Cognitive Poetics and Metaphor: Broad Reaching Applications as Seen in Three Examples from Shakespeare, Charles Dickens, and James Joyce*
DeVilbiss, Andrew; Mahoney, Jacob	Chemistry	Todd Weaver	*The Use of Negative Design to Characterize Hemolysin A from Proteus mirabilis*
Edman, Brian	History	John Grider	*Women Striking for Rights: The Story of Mill Workers in Lowell, MA*
Entringer, Tiffany; Stark, Lee	Psychology	Alex O'Brien	*What's in a Voice: Vocal Characteristics and Their Influence on Courtroom Decision Making*

Name	Department	Mentor	Title
Erdman, Laura	Biology	Tisha King-Heiden	*Developmental Toxicity of Vinclozolin in Zebrafish*
Falkowski, Derrick	Theatre	Mandy Hart	*Lighting with Technology for "Into the Woods"*
Gorski, Emily	Psychology	Ryan McKelley	*Stoic, Stubborn, or Sensitive: How Masculinity Affects Men's Help-Seeking and Help-Referring Behaviors*
Grames, Molly; Leverentz, Cortney	Psychology	Carol Oyster	*Attitudes toward Persons with Disabilities: A Comparison of Chinese and American Students*
Heidke, Chelsie	Art	Joel Elgin	*Awareness through Printmaking-Human Threats Imposed on Cambodian Coral Reef Ecosystems*
Hemmer, Michael	Mathematics	Sherwin Toribio	*Investigating the Evaluation of Estimating Animal Population Size*
Hicks, Elizabeth	Biology	Tisha King-Heiden	*Reproductive Toxicity of Vinclozolin in Zebrafish*
Hordyk, Peter	Biology	Scott Cooper	*Comparison of Hibernating and Non-Hibernating 13 Lined Ground Squirrel Platelets*
Huda, Fareen; Ganser, Jaden	Psychology	Melanie Cary	*Music's Effect on Mood and Helping Behavior*
Huston, Melyssa	Archaeology	Constance Arzigian	*Black-on-White Connections: A Look at the Relationship of Classic Mimbres Black-on-White Bowls with Burials*
Ignasiak, Rachel	Microbiology	William Schwan	*Discovering a Stilbene Drug Mechanism of Action for Killing Staphylococcus aureus*
Kaczmarek, Gina; Kohlnhofer, Bridget; Talhouarne, Gaelle	Biology	Scott Cooper	*Stability of Blood Clots in Hibernating Squirrels*
Kaercher, Kyra	Archaeology	David Anderson	*Roughware Ceramics and Evidence for Interregional Trade at the Predynastic Settlement at el-Mahasna, Egypt*
Kaercher, Kyra	History	Mark Chavalas	*Khirbet Kerak Ware at Tell Qarqur, Syria*
Kaufmann, Sarah; Remick, Adam; Gietman, Jacob	Biology	Nick Downey	*RNA Interference and its Effect on Protein Translation in Trypanosoma brucei*
Kockler, Derek	Art	Linda Levinson	*Projecting a Two Dimensional Panoramic Image in a Three Dimensional Display*
Kordus, Shannon	Biology	Anne Galbraith	*Developing a Novel Approach for Studying Recombination in SK-1Yeast Strains*

Name	Department	Mentor	Title
Kramer, Natalie	Exercise and Sports Science	Kari Emineth	*The Knowledge of Female Sport High School Coaches on the Female Athlete Triad*
Kranz, Kirsten	Psychology	Dung Ngo	*The Relationship between Empowerment Care and Quality of Life among Residents in Assisted Living Facilities*
Kroth, Sarah	Theatre Arts	Beth Cherne	*A Ghost on Page, Stage, and Screen: A Characterization Comparative Analysis of "The Phantom of the Opera"*
LaDue, Bethany	Art	Jennifer Terpstra	*Glass Blown Photography*
Leach, Raymond	Mathematics	Ted Wendt	*How Membership in GATT/WTO Enhanced Trade?*
Leigl, Megan	Archaeology	Constance Arzigian; James Theler	*A Faunal Analysis of the Sand Lake Site in Onalaska, WI*
Lewandowski, Kevin; Schrage, Tara	Psychology	Lisa Caya	*A Comparison of Sexual and Relationship Satisfaction in Short term and Long term Relationships*
Macaulay, Frances	Sociology	Tim Gongaware	*CODIMUJ: An Ethnography of a Women's Center in Mexico*
Mackenzie, Austin	English	Bryan Kopp	*Why Word Choice Matters: A Linguistic Category Analysis of the Twilight Series*
Maike, Andrew	Chemistry	Aaron Monte	*Discovering Antibiotics Among Native Plants of Wisconsin*
Maly, Tabetha	International Education, Residence Life	Jason Kouba; Nick Nicklaus	*The Effects of Traditional Spanish Culture on Women's Choices to Attend College*
McQuin, Michael	Archaeology	Constance Arzigian; David Anderson	*Protein Residue Analysis on End Scrapers from 47Lc164, Onalaska, WI*
Millard, Ashley; Korsmo, Mike	Biology	Bradley Seebach	*Single Alpha-Motor Neuron Contributions in Fictive Locomotion*
Mobley, Sean	History	John Grider	*Discovering the Key to the Star Spangled Banner*
Peasley, Dustin	Archaeology	David Anderson	*A Funtional Analysis of Black-Topped Redware and Polished Redware Ceramics from the Predynastic Site at el-Mahasna, Egypt*
Plombon, Elizabeth	Sociology	Enilda Delgado	*Levels of Environmental Values and Influencing Factors: 2005-2008*
Quinn, Edward	Archaeology	James Theler	*A Faunal Analysis: The Sanford Archaeological District (47L394-31)*
Rahn, Bethany	Art	Joel Elgin	*Printmaking in Italy*
Reed, Rebecca	Recreation Management	Gretchen Berns	*Perceptions of a Reoccurring Event Held at a Non-Traditional Location*

Name	Department	Mentor	Title
Rowe-Johnson, Meaghan	Psychology	Tracie Blumentritt	*Does Happy at Home Mean Happy at Work? Life Satisfaction and Sales Performance*
Schneider, Aimee; Wherry, Erica	Exercise and Sports Science	Carl Foster	*Translation of Incremental to Steady State Exercise Response*
Schultz, Ashley	Sociology/Archaeology	Tim McAndrews	*An Environmental Reconstruction of a Parotani Site at Pirque Alto*
Siemon, Cedarose	Art	Jennifer Terpstra	*The Development of Illustrating the Essence of a Subject in Painting*
Simon, Jenica	Archaeology	David Anderson	*An Agroecological Comparative Study of Monongahela and Oneota Land Use with GIS*
Sitek, Matthew	Sociology/Archaeology	Tim McAndrews	*lnvestigation of Household Archaeology at the Pirque Alto Site (CP-11), Cochabamba, Bolivia*
Solveson, Samantha	Sociology/Archaeology	Kimberly Vogt	*Perceptions of the Death Penalty: The Effects of Race and Type of Execution*
Stassen, Peter	History	Victor Macias-Gonzales	*Piracy and Banditry in the National Narrative of Spanish America*
Thao, Yang Cha; Vang, Pa Houa	Mathematics	Jennifer Kosiak	*Creating Connections: Hmong Culture and Mathematics*
Tomcek, Laura	Archaeology	Joe Tiffany; James Theler; Constance Arzigian	*Analysis and Interpretation of the Subsistence and Archaeological Features at the Heath Site (39LN15) Lincoln County, South Dakota*
Turriff, Emily	Archaeology	David Anderson	*An Analysis of Faunal Remains from the Site of el-Mahasna, a Predynastic Settlement in Upper Egypt*
Van Wyck, Laura; VanEyll, Emily	Psychology	Betsy Morgan	*Influence of STIs on Condom Use and Behavior in College Age Women*
Weathers, Sylvia	History	Victor Macias-Gonzales	*Forty Years Later: The 1968 Edcouch-Elsa, TX Student Walkout in the Generational Memory of a South Texan Chicana/o Community*
Webb, Curtis	Archaeology	Constance Arzigian	*Origins of Angkor Project at the Ban Non Wat Site, Nakhon Ratchasima Province, Thailand*
Wojcik, Kyle; Demmer, Tim	Biology	Bradley Seebach	*Investigating the Role of Acute Application of NT-3 in Up-regulation of p75-TrkC Hetero Complexes in Neonatal Rat Spinal Neurons Using Immunoflorescence in Conjunction with Confocal Microscopy*

2009 RECIPIENTS OF THE GRADUATE RESEARCH, SERVICE AND EDUCATIONAL LEADERSHIP AWARDS

Student's Name	Department	Faculty Sponsor	Title
Bailey, Sean	Biology	Mark Sandheinrich	*Assessing the Utility of Larval Dragonflies as Mercury Biosentinels in Inland Freshwater Ecosystems*
Bauer, Katie	Microbiology	Bernadette Taylor	*Antibody Response to Influenza Virus Protein Neuraminidase after Intradermal Versus Intramuscular Vaccination*
Bushman, Timothy	Exercise and Sport Science	Carl Foster	*How Much Oxygen Desaturation Occurs in Healthy People Hiking at Simulated Altitude?*
Cohen, Jacob	Exercise and Sport Science	Carl Foster	*"Breaking Away': Effects of Non-Uniform Pacing on RPE Growth"*
Coolidge, Sarah	School Psychology	Rob Dixon	*Emotions in Adolescence: Exploring Dysfunctional Emotion Regulation Across a Clinical and Non-Clinical Sample*
Foltz, Matthew	Biology	Tom Volk	*Investigating Chanterelle Mushrooms in Western Wisconsin to Determine Whether They are Genetically Distinguishable as Separate Species from Chanterelles in Other Parts of the United States and Europe*
Gander, Jill	Microbiology	Mike Hoffman	*Role of Cis-acting Promoter Elements in Human Parainfluenza Virus Type 3 Genome Replication*
Gray, William	Biology	Roger Haro	*Do Nutritional Imbalances between the Invasive Snail Bithynia tentaculate and its Algal Food Resources Affect its Distribution and Abundance in the Upper Mississippi River*
Horlitz, Sarah	Exercise and Sport Science	John Porcari	*Acute Physiological Effects of Interval Training Versus Steady State Exercise*
Hovseplan, David	Health Professions	Stacey Meardon	*Validity and Reliability of the Polar RS800CX and Garmin Forerunner 305 for Running Speed*
Jagim, Andrew	Exercise and Sport Science	Glenn Wright	*Effect of Beta-alanine Supplementation on Power Outputs During Two Types of High Intensity Exercise*
Jeanes, Elizabeth	Exercise and Sport Science	Carl Foster	*The Translation of the Talk Test to Exercise PrescriDtion*
Johnson, Nicole	Master of Education Professional Development: Initial Certification	Carol Witt-Smith	*High School Biology Lesson Plans: Professional Development and Curriculum Exploration at the 2009 National Association of Biology Teachers (NABT) Conference*
Kaphingst, Amy	Exercise and Sport Science	Carl Foster	*The Effects of Music Tempo vs Percussion vs Beat Frequency on Exercise Intensity*
Kreitinger, Jerica	Exercise and Sport Science	Carl Foster	*Effects of Music Tempo on Running Performance*
Laukkanen, Katri	Biology	Mark Sandheinrich	*Photosynthesis Active Radiation (PAR) Influence on Microhabitats of Sculipin in Southwest Wisconsin Streams*

Student's Name	Department	Faculty Sponsor	Title
McDonald, Margaret	Recreational Management Therapeutic Recreation	Susan "Boon" Murray	*Becoming a Certified Therapeutic Riding Instructor as a Specialized Competency for a Supervisory Recreation Management Position in Equine Assisted Therapy*
McHugh, Maggie Lee	Mathematics	Jennifer Kosiak	*A Children's Story: Creating Connecntions between Hmong Culture and Mathematics*
O'Brien, Kacie	Exercise and Sport Science	Carl Foster	*The Process of Learning a Pacina Strateav in Various Age GrouDs*
Passow, Teri	Student Affairs Administration	Chris Bakkum	*A Qualitative Study of Students Perceptions of the Transfer Support Systems Offered at the University of Wisconsin- La Crosse and the University of Wisconsin Colleges*
Pustina, Andrew	Exercise and Sport Science	Glenn Wright	*Evaluation of Three Different Methods in Determining Peak Leg Power of Loaded Jump Squat*
Rentschler, Ann	Microbiology	Bill Schwan	*Regulation of Uropathogenic Escherichia coli fimB and fimE genes by OmpR*
Richters, Karl	Biology	Scott Cooper	*The Effects of Hibernation on Platelet and White Blood Cell Fate and Function*
Rogatzki, Matthew	Exercise and Sport Science	Glenn Wright	*Blood Ammonia and Lactate Levels During Intense Exercise*
Stoner, Jennifer	School Psychology	Rob Dixon	*Social Skills Development: The Impact of Sports on Participation*
Tepper, Stephanie	Exercise and Sport Science	John Porcari	*The Physiology Responses of the RealRyder®*
Thompson, Jillian	Exercise and Sport Science	Mark Gibson	*The Effects of Kinesio Tape on Strength and Activation of the Middle Deltoid Muscle*
Voit, Amber	School Psychology	Jocelyn Newton	*Reading and Math Academic Self-efficacy in Elementary-Age Students*

CONGRATULATIONS – UNDERGRADUATE STUDENTS!

2009 Celebration of Student Research and Creativity Award Recipients:

Name	Department	Mentor	Title
Meagan Arnold	Microbiology	Marc Rott	*Characterization of an Antimicrobial Compound from a Xenorhabdus Species*
Brooke Baldwin	Physics	Shauna Sallmen	*Search for Shells in the Interstellar Medium*
Matthew Cocchiola	Chemistry	Adrienne Loh	*Characterizing the Hydrogen Bond Strength in Short Helical Peptides Composed of Varying Amounts of Aib and Ala Amino Acids*
Kathleen Engelbrecht and Rebecca L. Polanowski	Microbiology	Marc Rott	*Evaluation of Novel Gram Positive Specific Antimicrobials Derived from (E)-3-hydroxy-5-methoxystilbene*
Matthew Groshek	Biology	Meredith Thomsen	*Competition between Reed Canary Grass and Silver Maple Seedlings*
Gina Lessard	Communications Studies	Scott Dickmeyer	*Persuasion, Symbols, and Alfajores: A Qualitative Study of Unique Advertising Approaches in Argentina*
Garrett Pluym	Biology	David Howard	*I1 Dynein Is Necessary for Flagellar Coordination*
Joe Riebe	Biology	Rob Tyser	*Preliminary Analysis of Land Cover Transitions within Selected Backwater Areas of the Upper Mississippi River from 1989 to 2000*
Emily Turriff	Sociology / Archaeology	James Theler	*An Analysis of Fish Remains from the Krause Site (47Lc41), in La Crosse County, WI*
Katie Vice	Art	Roger Grant	*Photographic Printing on Non-Traditional Surfaces*

CONGRATULATIONS – GRADUATE STUDENTS!

2009 Celebration of Student Research and Creativity Graduate Award Recipient:

Marisa Barbknecht – Biology
Mentors: Mike Hoffman and Becky Lasee
Characterization of an Unclassified Virus and Survey for Its Presence in Wisconsin Bluegill Populations

2009 Graduate Thesis Award Recipient:

Lynn Hrabik -- Master of Public Health
Mentor: Gary Gilmore
Results of a Social Cognitive Theory-Based Smokeless Tobacco Prevention Program for Rural Youth Athletes

2009 Graduate Academic Achievement Award Recipients:

Benjamin Burns – School Psychology
Mentor: Rob Dixon

Dorrie Unertl – Student Affairs Administration
Mentor: Jon Hageseth

2009-2010 Undergraduate & Graduate Committees

Undergraduate Research Committee Members & Consultants

- Kathryn Birkeland
- Nicholas Downey
- Anthony Docan
- Gretchen Berns
- Bonnie Bratina
- Tim Gongaware
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U=undergraduate poster; UR=undergraduate oral; G=graduate poster; GRAD=graduate oral; E=exhibit

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Mark Champa
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Jordan Jaeger
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We welcome your comments and suggestions about the Celebration. Please send them to stdtresearch@uwlax.edu.

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