

**Third Annual  
UW-System Symposium for Undergraduate  
Research and Creative Activity**



**April 24, 2001  
University of Wisconsin Eau Claire**

*Sponsored by:*  
University of Wisconsin-System Administration

*Hosted by:*  
University of Wisconsin-Eau Claire Center for Excellence for Faculty/Student Research  
Collaboration; and, Continuing Education in cooperation with UW/Extension

## **Creative Activity Sessions: Theatre/Dance/Literary Performance**

### **WOMEN IN CONTEMPORARY ART**

*Liv B. Aanrud (Stephen R. Katrosits), Department of Art, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

The proposed collaborative research project is an investigation into contemporary women's art, with a focus on abstract painting. This project will involve a trip to New York City in the spring. Attendance at artist talks, possible studio visits, and private gallery appointments would provide a survey from which to examine the current situation of women in the arts, the inner workings of the art world, and a base on which to further my artistic process. Part of this process involves the production of my own work, mainly abstract paintings, as I gain a better understanding of my work and its relation to others in the contemporary arts. The results of this inquiry will be presented in the form of a "Brown Bag Lunch"; furthermore, I will exhibit my artwork at the cooperative art exhibition at the student poster day and System Symposium at the Davies Center, and in my Senior B.F.A. Show. This project has potential benefit for both female and male art students, as well as the faculty of the department as it reveals a community of artists and issues from which to draw influence and insight.

### **DYSLEXIC DAYDREAM**

*Jenny A. DeMuth (Marc Kotz), Department of Theatre/Dance, performance by Jenny DeMuth, Richard Pendzich, University of Wisconsin-Whitewater, 800 W. Main Street, Whitewater, WI 53190.*

The choreographic work, *DYSLEXIC DAYDREAMS*, was created using ideas from many different sources. One source used was dreams and daydreams that were recalled and incorporated into the piece. Another source was a "Dreamers Workbook" that covered everything from symbolism in dreams to sleepwalking and talking. Using elements of different devices, movement was created to describe how the dream starts and who the characters are in the dream. Throughout the piece, along with the ebb and flow of the modern based movement and gestures, there is a twist and the piece changes. The work incorporates the interaction between the female and male dancer as the relationship grows, develops, and changes. Movement is based on gesture, partnering, and a unique blend of ballet and new age movement.

### **ART AS CRITIQUE IN A COMMERCIAL CULTURE**

*Ben A Garthus (Stephen Katrosits), Department of Art, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

The research involved in the student faculty collaborative grant, has been focused on the commercial art industry and its effects on postmodern society, as well as its relationship to the Fine Arts. Along with book research, I have visited contemporary art galleries in Minneapolis, Chicago, and Madison and will be going to New York over spring break. I have also been studying a broad range of entertainment, advertising, and commercial products in order to better understand how they function. Currently I am trying to express my relationship with commercial culture, which is one of respect and disgust. Commercial culture has always captivated my attention but I am leery of the effects it is

having on our society. My goal is to make the viewers feel this dichotomy and become more conscious of this culture. Paintings and large computer prints are the results of my research. Because of this, the most effective way to view my research is through looking at my work. I will show my work with the other undergraduate research art students and in the and at my senior BFA show.

### **NEW FORMULAS: PAINTING AND POSTMODERNISM**

*David D. Jensen (Scott Robertson), Department of Art, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire WI 54702-4004.*

The stated objective of this research grant will be to explore new avenues of contemporary painting as well as research historical works of the early avante garde. In Modernism, definitions held schools of painting together. The definitions were exclusive. Modernism is involved in how an object is made, how it is perceived, and what defines art. It focuses on the formal properties of art. In contrast, formalist issues in Post-Modern art take a secondary role to other concerns, such as why an art object is made, how it is experienced, and what the object means beyond its formal composition. Post-Modernism focuses on the relationship between representation and content. In Post-Modernism, categories are never clearly drawn; a multitude of purposes and categories exist side by side. David Jensen wishes to explore these new approaches to painting to include both contemporary theory and practice. Through this research, David hopes to develop a greater understanding of the social context that his work fits into as well as exploring themes such as globalization. These are issues that David has already begun to explore in his previous work. This grant will provide financial support for materials such as new paint mediums so David can continue his creative inquiry into Post-Modernism.

### **ALASKA AND BEYOND**

*Stephanie Johnson (Jenny Brantley), Department of English, University of Wisconsin-River Falls, 410 South Third Street, River Falls, WI 54022.*

Stephanie Johnson will be reading original creative non-fiction and poetry. Many of her poems are a journey through language, dealing with the delicate balance between self and nature. This assortment of creative works was influenced by the student's travels in Alaska, Thailand, and her backyard.

### **AN ORAL HISTORY OF A COUNTRY SCHOOL IN WISCONSIN 1961-2000**

*Lisa Juzenas, Kim Trent (Lenore Peachin Wineberg), Department of Curriculum & Instruction, University of Wisconsin-Oshkosh, 800 Algoma Boulevard, Oshkosh, WI 54901.*

This video documents the oral history of a country school in Wisconsin that closed its doors after 39 years of education, 1961-2000. The video focuses on the personal memories of former teacher, students, parents, and staff of a country school. Those interviewed spoke of the support of the community, the closeness of staff, and the students, and the value of the large outdoor space and nature center for learning. The video concludes with reflections on the lessons learned from the country school and its implication on contemporary education.

## **COLD DAY, WHILE WAITING FOR A CAB AT VETERANS PARK, AND OTHER POEMS**

*Robert Kloss (Jenny Brantley), English Department, University of Wisconsin-River Falls, 410 S. Third Street, River Falls, WI 54022.*

I will be reading several poems that are relatively narrative in structure, mainly dealing with the various aspects of the father-son relationship. Topics covered include alcoholism, death, and hopelessness in a godless universe. Walt Whitman, Sylvia Plath, Ted Hughes, and e. e. cummings have been influences on my writing. In one poem in particular, I have tried to merge the conflicting styles of Plath and cummings.

## **TRANSITIONS**

*Mary R. LaVenture (Deirdre Monk), Department of Art, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

Our objectives are to portray the evolutionary cycle of life and death, freshness and decay, through the use of metaphor and symbolism using photography as the medium. Through both color and black and white photography, we are planning an exhibition on the nature of life transitions, including the metamorphosis of birth, growth, maturity, and death. We will research the nature of symbolism and metaphor to help us fulfill our goal. The project is significant in its ability to both speak to the frailty of the physical world, and the ability of photography to interpret those states of inevitable transition. Our hope is that these 30 images will encourage those who see the exhibit to consider the intricate nature of the ever-evolving ecosystem in which we exist. We hope to develop a stronger sense of the author, audience, and subject relationships. Developing an ability to deal with this subject matter in metaphysical and symbolic ways offer the opportunity for author and audience to correspond and contemplate the nature of physical and metaphysical transition.

## **APPROACHES TO MOLD-MAKING AND CASTING**

*Kristine MacCallum (Professor Michael E. Christopherson), Art Department, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

Artists explored various methodologies and technologies available to sculptors for the purpose of mold-making and casting. The project intent was to uncover art-making options which enable the creation of multiples and more complex imagery in sculpture. To accomplish this, traditional approaches to mold-making were employed in new ways, and new developments to mold-making and casting were examined, including use of urethane compounds for mold-making and plastic resins for casting. Also, experimentation pursued various uses of such casting materials as concrete, wax, plaster, glass, paper, and perishable materials such as ice and chocolate, each of these in non-traditional combinations. To gain an information base, a literature search was conducted to research techniques, materials, and issues pertaining to contemporary mold-making and casting. Experts in the academic, industrial, and art arenas were interviewed to learn more about state-of-the-art and experimental methods in use. Dissemination of information gained from these investigations was shared with other sculpture students through demonstrations and one-to-one mentoring. Also, a procedural manual was developed to include step-by-step instructions, safety considerations, troubleshooting recommendations, examples of mold-making in sculpture, and a bibliography. This

manual is intended as a special guide for artists and provides instructions beyond the manufacturers' guidelines.

### **BRIGHT JOURNEY**

*Michelle Mihaljevich (Marc Kotz), Department of Theatre/Dance, performance by Whitney Garski, Angela Mangold, Michelle Mihaljevich, Tia Wiesensel, University of Wisconsin-Whitewater, 800 W. Main Street, Whitewater, WI 53190.*

The ballet piece, BRIGHT JOURNEY, began with general ideas and images associated with the story of the Titanic. The music chosen for this piece, Southampton, from the movie, Titanic, also contributed to the mood. Movement ideas incorporated the use of playful child-like movements in conjunction with elegance, all within the classical ballet genre. Choreographically, different phrases were built, some using big powerful traveling movement and others slow, soft, elegant and graceful movement. In collaboration with the dancers, the phrases were taken apart and recombined to form variations of the originals with various floor patterns and formations. Throughout the piece, different combinations of dancers were used to interact with each other.

### **AN ARTIST'S STATEMENT**

*Bryan Mulrooney, Department of English, University of Wisconsin-River Falls, 410 S. Third Street, River Falls, WI 54022.*

My poems tend to be picturesque and descriptive; a kind of poetic reporting. I try to notice the shadows of things, elements of darkness, which often lie alongside or behind what I see as beautiful. My memories and emotions are most stirred by ordinary occurrences like rain, people walking in the street, a building. I use my poetry to simply tell others what I see and how something makes me feel. Being a strong proponent of John Keats' idea of "Negative Capability," I concentrate not on the why or how of things, but the simple relation between myself and what strikes me as something I want to write about.

### **GETTING IT**

*Shannon C. Pingel (Jenny Brantley), Department of English, University of Wisconsin-River Falls, 410 South Third Street, River Falls, WI 54022.*

This narrative essay explores the process of growing up and the loss of innocence. Through retrospection, the author makes the discovery that growing up happens when one is too young to understand, and realizes that it is a process not yet finished. These ideas are explored through a look at significant events and rites of passage like a first menstrual period and first day of school.

### **A QUESTION OF HONOR: A YOUNG ADULT HISTORICAL FICTION NOVELLA ABOUT THE U.S.-DAKOTA CONFLICT OF 1862**

*Diane R. Przybelski (Denise Sweet), Department of American Indian Studies & Department of Humanistic Studies, & Department of Interdisciplinary Studies, University of Wisconsin-Green Bay, 2420 Nicolet Drive, Green Bay, WI 54311-7001.*

The first of the western "Indian Wars" erupted in Minnesota in the summer of 1862. The U.S.-Dakota Conflict last six weeks, caused the deaths of hundreds of white settlers and Dakota Indians, and cost the Dakota people their reservation land in Minnesota. It also

resulted in the mass execution of thirty-eight Dakota men, hanged as criminals for participating in the war. *A Question of Honor* is a novella, written for young adults, that tells the fictional story of two boys, one a white settler, the other a traditional Dakota Indian, who are faced with the U.S.-Dakota Conflict. The story is based on an oral history told to the author, by a Mdewakanton Dakota acquaintance, about a white boy who changed places with his Dakota friend to die in this friend's place in the hanging. The setting is real and the conflicts are real, but the main characters are fictional. This literary reading will include a synopsis of the research done for the novella and a brief exploration of the complicated causes of the U.S.-Dakota Conflict. It will mainly consist of a literary reading of one to one and one-half chapters of the novella.

### **A MUSICAL INTERPRETATION OF SALVADOR DALI'S *PERSISTENCE OF MEMORY***

*Andrew J. Thiele (Namji Kim), Music Department, University of Wisconsin-Green Bay, 2420 Nicolet Drive, Green Bay, WI 54311-7001.*

Surrealism was an artistic movement in the early/middle part of the 20<sup>th</sup> century. In their works, surrealists expressed conscious and unconscious thoughts with absolute freedom and autonomy; their works often took on dream-like qualities where reason and logic were juxtaposed with absurdities and distortions. Their struggle for an emotional epiphany was often conveyed through extreme abstraction and exaggerations of real-life objects. Salvador Dali was one of the more renowned artists of this genre. His haunting imagery and eccentric titles both shocked and fascinated the art world. This project focuses on the thoughts and images generated from a study of Dali's *Persistence of Memory*. I am completing a composition which musically interprets the visual and symbolic elements of this Painting. My composition contains a juxtaposition of electronically manipulated sounds which evoke the dream-like atmosphere of Dali's work. As a musician, I want to present a personal vision of this painting using my composition and my ideas, thus demonstrating the various aspects of the relationship between Dali's *Persistence of Memory* and music.

## **Oral Sessions**

### **DETERMINATION OF METAL CATIONS IN ORGANIC SOLVENTS BY DONNAN DIALYSIS**

*Amber M. Antonia (Lori Allen), Department of Chemistry, University of Wisconsin-Parkside, 900 Wood Road, Kenosha, WI 53141.*

The determination of metals present as contaminants in organic solvents is of great importance for many of the end-use applications for the solvents. As an example, metal contaminants in organic solvents are extremely problematic for the semiconductor industry. The determination of metals in these samples is frequently hindered because of the sample matrix. Therefore, great interest exists in techniques designed to extract or isolate the metals from these unfriendly sample matrices into a matrix that is more analysis friendly. Donnan dialysis is one such extraction technique that also offers enrichment capabilities and the ability to be directly interfaced with the instrumentation.

Published efforts with Donnan dialysis are few and limited to relatively clean samples, such as spiked surface waters. This report will describe efforts at using Donnan dialysis for the extraction of metal cations in organic solvents. Performance defined by detection limits and reproducibility will be reported for methanol, ethanol and acetonitrile.

### **INDEXING SUPOSITORY AND DOCUMENT RETRIEVAL SYSTEM**

*Karin Aust, University of Wisconsin-La Crosse, 1725 State Street, La Crosse, WI 54601.*

A document archival system maintains a collection of documents, and an index repository that is used to identify the document in the archival system. Traditionally, the index repository assumes a document as one entity and builds the indexes using the document identifiers such as the name or the document index. The aim of this project is to build an index repository for documents as well as for the contents of the documents. The indexes will include both user-defined words, and other words that are not “stop words” (words that commonly occur in any document). The system will build the index repository and also will provide searching mechanisms by which one can identify the documents based on their contents. The project concentrates only on textual documents at present. The building of the repository was required to be time-efficient and the project aims at fulfilling this requirement. While reporting the results of a search, the system will indicate how many documents that contain a particular word, identification of those documents and also how many times the word appears in each of these documents.

### **EFFECT OF STRIDE FREQUENCY ON PLANTAR LOADING IN TYPE 2 DIABETES**

*Amy Bellmeyer, Jason Strasser (Thomas Kernozek, Margaret Maher), Departments of Physical Therapy and Biology, University of Wisconsin-La Crosse, 1725 State Street, La Crosse, WI 54601.*

Neuropathy and high plantar pressure are two prevalent risk factors associated with diabetes mellitus (DM) that may lead to foot ulceration. Commonly, neuropathy, or the gradual loss of nerve function, limits the amount of sensation on the plantar aspects of the feet. Increased plantar pressure occurs due to alteration of musculoskeletal and soft tissues in patients with DM. Once ulceration has occurred, DM also contributes to a reduced ability to heal. A pendulum-based model has been used to predict preferred stride frequency (PSF). PSF is appropriate for healthy populations in order to keep plantar pressures at the lowest levels. However, PSF may not be appropriate for the DM population considering the neuropathy and plantar pressure concerns. Therefore, the purpose of this study was to examine how stride frequency above or below PSF alters plantar loading. Twenty volunteers with diagnosed Type 2 DM walked on a treadmill at PSF and four randomly sequenced bouts at 5% and 10% of PSF, on two separate occasions. Plantar pressures were recorded from Pedar insoles placed in running shoes. Alterations in stride frequency to decrease plantar loading may result in prescriptive procedures for lowering plantar ulceration risks of patients with Type 2 DM.

### **PRECIPITATING FACTORS WITHIN THE GERIATRIC POPULATION THAT LEADS TO ENTERING INTO ASSISTED LIVING FACILITIES**

*Jen L. Breunig, Nicole L. Sammons, Kristin G. Brang, Kendra L. La Crosse, Dana*

*R. Young (Robin McCannon), Department of Occupational Therapy, University of Wisconsin–La Crosse, 1725 State Street, La Crosse, WI 54601.*

Occupational therapy literature describes falls, poor health, and safety as concerns among the geriatric population, yet does not directly relate these as precipitating factors leading to the need of long-term care. This study seeks to explore how occupational therapists can keep the elderly population living safely and independently at home, as this population continues to grow. Interviews were conducted at three assisted living facilities in Winona, Minnesota. A total of 19 subjects were interviewed in order to obtain the reasons they entered assisted living, and the satisfaction they have with their particular facility. The subjects were also asked of their understanding of occupational therapy. Of the 19 responding assisted living residents, 36.8% reported that a fall was the number one reason that compelled them to enter an assisted living facility. 21.1% felt that it was unsafe for them to live alone any longer, while another 21.1% attributed their move to overall poor health. Other reasons included family recommendations, stroke, and death of a spouse. Falls appear to be an issue in geriatrics entering assisted living facilities in Winona; therefore, Occupational Therapy services would be helpful (i.e. fall prevention, community programs) to enable geriatrics to remain at home longer.

### **CREATING THE “I”: CON-POE IN GOTHIC LITERATURE**

*Jeri Capek (Marguerite Helmers), Department of English, University of Wisconsin-Oshkosh, 800 Algoma Boulevard, Oshkosh, WI, 54901.*

In mass culture, Edgar Allan Poe is pictured as the narrator of his tales, rather than the author. Because Poe writes his macabre tales in the first-person, the “I” of the works opens a gap. This gap encourages readers to see Poe as the narrator. Unfortunately, this Poe is a madman, an alcoholic, and a drug user, traits of his characters, but not necessarily those of the writer. My paper will argue that constructing a “Poe” from Poe’s tales is misguided. For one, Poe’s certain enemy Rufus Griswold was responsible for fostering this image. Secondly, popular cultural mythology has perpetuated this vision of Poe because of its interest in things dark and menacing. I argue that there are two sides of Poe: the logical Poe who worked as a writer and critic (historical Poe) and an alternative “Poe” whose life is constructed from his works (the icon Poe or what I refer to as “Con-Poe”). The historical Poe, like many popular icons, has suffered from being associated with his other, Con-Poe. Using the insights of French critic Jacques Derrida, my paper explores the relationship between the two selves.

### **SUPER VECTOR SPACES, TENSOR AND SYMMETRIC ALGEBRAS AND DERIVATIONS**

*Jennifer Cox (Michael Penkava), Department of Mathematics, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

Supersymmetry has recently played an important role in string theory in physics. The notion of a superspace appeared much earlier in mathematics. The cohomology ring of a topological space is equipped with a super vector space structure; in fact, it is an example of an associative superalgebra. This talk will focus on some of the basic properties of super vector spaces and superalgebras. The notion of supercommutativity differs from the ordinary commutative law due to the introduction of some sign changes in the commutative law. These signs are related to a representation of the symmetric group, and

play a large role in the properties of superspaces. Derivations of algebras are generalizations of the notion of a partial derivative, and obey the product rule for derivatives. There is a super version of the product rule. The talk will discuss the derivations of the tensor and symmetric algebras. The study of these derivations is necessary in order to classify some important new types of algebraic structures, called infinity algebras, which have recently appeared in both mathematics and physics.

#### **DEACONS FOR DEFENSE AND JUSTICE IN MISSISSIPPI AND ALABAMA**

*Robert Ecker, Rebecca Reid (Selika Ducksworth-Lawton), Department of History, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*  
The Deacons for Defense and Justice in Bogalusa, Louisiana proved the success of armed self-defense as a tactic in 1964. Little is known about them outside of Louisiana. The more interesting question is, in light of their success in Bogalusa in fighting the Klan and forcing integration, why was their model not successfully replicated in Alabama and Mississippi? This project will begin the research to answer that question. Mr. Ecker and Ms. Rebecca Reid will help do background research on the Deacons for Defense and Justice in Alabama and Mississippi, help identify existing interviews, and analyze the data. They will look at the philosophical questions on adoption of armed self-defense, and whatever influence the deacons had on the Black Power movement, along with the Deacons' relationship to the mainstream civil rights movement.

#### **DISTRIBUTED QUERY OPTIMIZATION OVER HIGH SPEED NETWORKS**

*Kyle Floren (Jack Tan), Computer Science Department, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*  
Many networks use large bandwidths instead of small bandwidths because they can send large amounts of data quickly and easily. The algorithms being used by the large bandwidths are the same as the ones being used by the small bandwidths and they need to be changed because they do not deal with the same problems as the smaller bandwidths do. The problems that need to be addressed are to find a way to reduce the latency that occurs when the file sent over the network, use bandwidth on demand so that multiple files can be sent over the network at the same time, and use multicast which sends a file from one point to multiple points. The algorithms that are being used today do not address these problems and need to be changed. This project addresses a solution to this problem by using a hypercube to uniquely identify the nodes and data compression algorithms along with efficient communication paradigms. The object is to find an algorithm that will minimize the latency, optimize the use of the bandwidth on demand, and take into account networks that use multicast.

#### **ANALYSIS OF BEHAVIORAL METHODS IN AN INTERIOR DESIGN OF A HISTORIC BUILDING**

*Holly E. Gialdini, Robert J. Coe, Dawn M. Raczek (Nisha Fernando and Dr. Kathe Stumpf), Division of Interior Architecture, University of Wisconsin-Stevens Point, 2100 Main Street, Stevens Point, WI*  
Traditional approaches to design solutions in interior architecture are based on studying historical precedents. Such precedents present design patterns that focus primarily on the aesthetics of a given space. In this oral presentation, we change this focus from mere

aesthetics to behavioral functions of the spaces. The research and analysis involve how the building is being used for various functions, what patterns of user behavior can be observed in the interior spaces, what opinions and ideas the various users may express about their place experiences and meanings of these spaces. By following a systematic behavioral methodology, we collect information on the spaces and their use through an inventory, conduct behavior maps in various interior spaces, and gather knowledge on place experiences by user surveys. Information gathered from these data is triangulated and used as a knowledge base for deriving various design concepts. Therefore, this design approach differs from the conventional precedent studies and focuses on more place-specific design solutions.

### **A DRAMATIC VIEW OF SOCIAL MESSAGE SONGS: BEN SHAW'S "UP THROUGH THE CONCRETE" AS AN EXEMPLAR**

*Keiko Hata, Department of Communication & Journalism, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

In the 1960s, American "folk songs" were dominated by what many viewed as countercultural social messages about the need for intellectual and political changes in the country. Today, in contradiction to the disheartening view that the current generation is apathetic about social change, powerful social messages can be found in rap, hard rock, pop folk, etc, that suggest a discontent with contemporary societal values and conditions. One difference—besides the kinds of music—between the songwriters of the 21<sup>st</sup> century and those several decades earlier is that, using the terminology of Kenneth Burke's Dramatism, the current lyrical rhetoric focuses on self-mortification as well as victimage. This new, more self-reflexive songwriting disallows the easy redemption of the social world by demanding penance from the guilty. In this paper, I use a Burkean pentadic analysis to tease apart the songs of Ben Shaw, a singer-songwriter today, who is disgusted with the society of which he is a part, and yet who acknowledges his "consubstantiality" with it. As an exemplar, I analyze one of Shaw's songs: "Up through the Concrete" to both illustrate Kenneth Burke's Dramatism and compare it to lyrics from several folk songs of the turbulent Sixties.

### **UNITED STATES VERSUS AMISTAD: USING THE ELABORATION LIKELIHOOD MODEL TO PERSUADE FOR ABOLITION**

*Erika B. Hiscox (Susan Hafen, Ph. D.), Department of Communication and Journalism, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

The case of the United States versus the Amistad was a landmark case in the fight for abolition in the U.S. In the arguments used by John Quincy Adams, defense co-counsel, the Supreme Court found justification in making the historical decision that the Africans were people and not property. Each side of the slavery issue -- in this case of African slaves who had revolted on the ship, Amistad, on its way to Puerto Principe and attempted to return home -- used one of the two routes of information processing presented in Petty and Cacioppo's Elaboration Likelihood model. This paper presents both their historical arguments, asserting that those in favor of slavery chose the "peripheral" route, while the abolitionists used a more central route in their arguments. This paper further undertakes an explanation of why the peripheral route would have been attractive to arguments favoring slavery and how it jeopardized the more central

route of elaboration. Finally, using the film, "Amistad," the paper analyzes the fictionalized version of the true story of the Amistad as another layer of elaboration both central and peripheral.

### **ASSET MARKETABILITY AND LIQUIDITY ANALYSIS**

*Paul Johnson Jr., Timothy K. Tucek (Dr. Yvonne Chueh), Department of Mathematics, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

Over the past few years, rating agencies such as A. M. Best, Standard & Poor, and Moody's have been assessing an insurance company's liquidity risk in order to determine its claim-paying ability and financial strength. Liquidity refers to the ability to turn assets into cash at close to the fair market value within a specific amount of time, which is determined by the contracts with policyholders and the creditors. A major cause of recent General American's failure was due to the lack of liquidity. The purpose of this research project is to determine the historical experience for the disinvestment of large portions of an insurance company's asset portfolio under duress and to develop a relationship between the liquidity of various assets into influential variables. Specifically, we wish to address two issues: (1) To develop a mathematical model that, for each asset class, would produce the time (t) to sell an asset class given certain input items such as maximum tolerable market value loss, size of cash need, et al. (2) To estimate the market value loss upon sale given certain input items such as time to sell, size of cash need, et al.

### **STUDENT GOVERNMENT ASSOCIATIONS IN THE UNIVERSTIY OF WISCONSIN SYSTEM: THE INVOLVEMENT OF MULTICULTURAL STUDENT LEADERS**

*Tommie L. Jones, Jr. (John Kozlowicz), Department of Political Science, University of Wisconsin-Whitewater, 800 W. Main Street, Whitewater, WI 53190.*

According to Wisconsin State Statue 36.09(5), students of each institution or campus shall be active participants in the governance and policies concerning student life, services, and interests. In addition, students shall also have the right to organize themselves in a manner they determine and select their representatives to participate in the institutional governance. Therefore, all students, including under-represented-multicultural students, should be involved in the process of institutional government decision making at the individual campuses. The purpose of this study is to examine UW-System student government associations as they relate to State Statue 36.09(5), and find out why there has been a lack of under-represented multicultural student leaders involved in their campus governance {UW-Green Bay, Milwaukee, Madison, and Parkside}. Secondly, this study will also show why students are not involved on such committees as Segregated University Fees Allocation Committee, University Center Board, and Residence Life as it relates to student life and governance.

### **MILKMAIDS AND HOMEMAKERS: THE VISUAL REPRESENTATION OF RURAL WOMEN OF THE UPPER MIDWEST, 1900-1940**

*Christine E. Kadonsky (Dr. Jane Pederson), Department of History, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54701-4004.*

The importance of rural women in the changing farm landscape of the early twentieth century has often been neglected in historical study. Despite the growing body of

research about rural women, little analysis has been completed using iconography. This research examines the visual representation of rural women in the Upper Midwest (Minnesota and Wisconsin) from 1900 to 1940. Using photographs, print advertising, cartoons, and paintings as evidence, this research focuses on three components of the lives of rural women: women at work, family, and community life, and rural women as consumers. The presentation incorporates many visual images in order to illustrate the findings. By utilizing a variety of visual materials, the author has concluded that during the early twentieth century, most visual representations of rural women confined women to stereotypical gender constructions. Although gradual changes in the representation of rural women did occur over time, the full range and significance of rural women's contributions were not recognized in the early twentieth century.

### **THE INCORPORATION OF SPIRITUALITY IN CURRENT OCCUPATIONAL THERAPY CURRICULUM**

*Rebecca C. Kadow, Angela Farb, Lynn Sorvala (Deborah Dougherty Harris), Occupational Therapy Department, University of Wisconsin-Lacrosse, 1725 State Street, La Crosse, WI 54601.*

Five hundred occupational therapy faculty nationwide were surveyed to determine personal and program definitions of spirituality, and if spirituality was a part of the present curriculum. Spirituality has been found not to occur separate from daily life, but exercised best in the midst of normal everyday activities. It has also been found to promote healing. Since occupational therapy practitioners are to engage clients with functional activity in regard to everyday living tasks, it is reasonable to expect spirituality to be addressed within the occupational therapy framework. Past research suggested that present therapists do not feel prepared to incorporate spirituality into their work. This discussion will explore the lack of incorporation of spirituality in current curriculums, and possible directions for the inclusion of spirituality in future curriculums. This study may help improve current clinical occupational therapy practice and may have application to other allied health programs in regard to incorporating spirituality into their curriculums.

### **STRANGER DANGER: ABDUCTION-SECOND GRADE STUDENTS**

*Justine Koschkee, Kelly Egan-Carroll, Michelle Bouche, Experimental Psychology, University of Wisconsin-Green Bay, 2420 Nicolet Drive, Green Bay, WI 54311-7001.* An experiment was conducted to test the hypothesis that a video presentation on stranger safety shown to second-grade students would lower the rate at which they would interact with a stranger. Forty-two second-grade students were divided into two groups: one that viewed the stranger video presentation and the other that viewed an educational video on animals. These students were approached one at a time one week later by a female stranger in the hallway inside the school building. Students were asked if they would help the stranger find her lost puppy outside. Students were tested on if they would indicate their name, and if they would ultimately leave the building with the stranger. The students were also timed on how long they interacted with the stranger. Results indicate that those students who interacted the longest and went outside with the stranger, were those that did not see the video presentation on stranger safety. Even more extraordinary, every child, except one, was more than willing to state his or her name to the stranger.

## **“WILL & GRACE”: AN EXAMINATION OF GAY MEN AND SPEECH CODES THEORY**

*Benjamin T. Licht (Susan Hafen), Department of Communication and Journalism, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

This paper uses Gerry Philipsen's Speech Codes Theory to analyze gay male communication styles. Speech Codes Theory has been used to describe communication within cultures (e.g., street gangs) and as a means to compare/contrast communication patterns in different cultures (e.g., blue-collar versus white-collar neighborhoods), yet it has not been used previously to describe communicative patterns among gay males. Philipsen's five propositions are applied to gay male interaction using intertextual examples, splicing together scenes from the NBC situation comedy “Will & Grace,” personal experience, and research from gay cultural studies. Exchanges between the characters Will and Jack (two gay men) and among the author and his gay friends exemplify the constitutive encoding of cultural in-group psychology, sociology, and rhetoric, and totemizing rituals. This study illustrates how, according to Philipsen (1997), “the terms, rules, and premises of a speech code are inextricably woven into speaking itself.” While there is no more a unified gay male culture than there is a unified street gang or blue-collar culture, this paper asserts that many gay male do indeed enact particular speech codes that make their community identifiably “home.”

## **MARXIST INTERPRETATIONS OF MYTHOLOGY: AN EXPLANATION OF ANCIENT MYTH THROUGH ECONOMY**

*Olaf C. Lind (Dr. Edward A. Beach), Philosophy and Religious Studies, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

When viewed as a total system Marxism claims to be able to explain all things, including religious expression, through material conditions, alienation, and class struggle. It should, therefore, be possible to demonstrate how the ancient Greek mythological system is an outgrowth of those material conditions. Through careful study of Marxist theory and Greek myth one can build an understanding of the relationships between economy, alienation, and class struggle, and the way in which the ancient Greek culture expressed itself religiously. It is through the exposition of these relationships that a systematic approach to ancient mythological religions can be attained. Through the presentation of this research I will explore the feasibility of a systematic approach to understanding religious expression through Marxist theory, demonstrate the system through which such myths may be understood, and explore criticisms of Marxism’s ability to explain the religious experience. Marxism, with its focus on the relationship between economy and culture, allows for important insights for the understanding of myth.

## **ENERGY RESOLUTION FOR CASCADE EVENTS IN ICECUBE**

*Emily H. Lombard (Dr. James Madsen), Department of Physics, University of Wisconsin-River Falls, 410 S. Third Street, River Falls, WI 54022.*

The Antarctic Muon And Neutrino Detector Array (AMANDA) is located at the South Pole and is the first of a new generation of neutrino telescopes. Strings of optical modules are deployed between depths of 1200 to 2200 meters below the polar ice cap. Neutrinos are indirectly detected when they interact near the strings of optical modules, producing a charged particle (either an electron or a muon). The charged particle will give

off Cherenkov light which is collected by the optical modules. Based on the timing and the intensity of this light, the direction and energy of the particle can be reconstructed. AMANDA, the largest functioning detector in the world, is only a prototype for a much larger project, Icecube. Icecube would increase the size of the detector to  $1 \text{ km}^3$ , roughly a factor of twenty times larger than AMANDA. This project studied simulations of the Icecube detector to help understand the energy resolution of electron cascade events.

### **AN APPLICATION OF GENDERLECT THEORY, MARITAL RELATIONS, AND “THE STORY OF US”**

*Kari Mathews (Susan Hafen), Department of Communication and Journalism, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

Deborah Tannen’s Genderlect Theory contrasts the communication styles of males and females. Tannen focuses on males’ “report” talk versus females’ “rapport” talk, as well as the gendered telling of stories, listening techniques, use of questions, and approaches to conflict. In this paper, I contrast the communication styles of my own parents, using Genderlect theory, as well as the communication styles of a fictional married couple (Ben and Katie) in the movie, “The Story of Us.” Both the fictional and the real married couple have marital problems due to their different communication styles and patterns, which are well researched in gender and family communication studies. The primary purpose of this paper is to apply that research to two particular marriages, illustrating the insights that Genderlect can provide in both popular culture and real life. The secondary purpose is self-reflexive, as I analyze my own gendered communication styles and patterns, interpolate them into the relationships of my parents and Ben and Katie, and then laminate those scenes into a future relationship with a marriage partner of my own.

### **PROMOTING USE OF RESEARCH IN NURSING PRACTICE BY NEW GRADUATES**

*Jessica J. McDaniel (Susan D. Moch), Family Health Nursing, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

Three recent University of Wisconsin-Eau Claire graduates undertook the challenge of participating in an action research project incorporating research into practice. They planned the projects based on the needs, resources, and constraints of their particular institution. This project was part of a larger research study entitled, “New Knowledge into Practice: A Comparison Between Groups.” “New Knowledge into Practice” is a new model for integrating research into practice, which involves discussion/collaboration between practitioners and a researcher. The practitioners meet every other week through four different one-hour group sessions. Group members read one article before each session on a topic selected by the group. My role as a research assistant promoted the use of research in nursing practice. I coordinated the communication, assisted with the Institutional Review Board process for each institution, and conducted literature reviews on the various selected topics. This support enabled the new graduates to conduct the action research. While new graduates are eager to participate in research, they lack the support and knowledge to proceed with a research project. Through this presentation, the process of research at the various institutions and the evaluations by the new graduates will be shared.

## **DETECTION OF SUGARS BY ENHANCED LIGHT SCATTERING**

*Shane McNally (Lori Allen), Department of Chemistry, University of Wisconsin–Parkside, 900 Wood Road, Kenosha, WI 53141.*

Sugars are frequently analyzed by refractive index detection following chromatographic separation. Refractive index detection is reproducible and universal in response, but typically suffers higher detection limits than other chromatographic detectors. In this report, we will examine the utility of enhanced light scattering detection for various sugars. In enhanced evaporative light scattering detection, the mobile phase eluent is nebulized and the solvent evaporated leaving residual particles composed of the analyte. These small particles are then grown, through condensation, into particles that can be readily detected by light scattering. This report will include a comparison to refractive index detection and normal light scattering detection and present initial results designed to further the enhanced light scattering process.

## **AGAINST ALL ODDS**

*Dawn Meyer (Helena Pycior), Department of History, University of Wisconsin–Milwaukee, 2310 E. Hartford Avenue, Milwaukee, WI 53211.*

As an African-American student depression and sadness is a daily fact in my life. It is sometimes overwhelming being a black man in America. With poor role models, . . . no inspiration and a hostile academic environment . . . I have thought about everything from leaving America to committing suicide. Decades have past since the civil rights laws of the 1960s, yet, as these words quoted from the web site of a young African American student make clear, discrimination towards African-Americans still exists. My research is about one of the black role models, who like many other African Americans, has had achievements too often ignored. Dr. Louis T. Wright, the focus of my historical study, is an example of hope. He was born into a world of segregation and prejudice, but he turned his hatred of injustice into a determination to challenge all boundaries. In 1915, he graduated cum laude from Harvard Medical School and then used his knowledge to combat racial bias in medical research. The first black physician to be hired by a New York City Hospital, Wright turned the once discriminatory hospital into a model of diversity. Dr. Wright should give people hope, that they too can overcome discrimination.

## **ESTABLISHING A DATABASE FOR MUSIC THERAPY**

*Jeffrey M. Miller (Lee Anna Rasar), Department of Allied Health-Music Therapy Division, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

The primary objective of this project was to establish a resource which presents descriptive information about music therapy findings by collecting research data and summarizing the results of music therapy research studies. This was accomplished by organizing student-annotated bibliographies for over 40 topics including ADD/ADHD, Surgery, and Mental Retardation. An archival resource that portrays the history of research in these areas was also created. Additional pages include resources for music therapy and technology, specific music genres, and educational applications. Students are now accessing the database as a part of Music Therapy project requirements. Students and the general public worldwide have expressed the usefulness of this site.

## **SOCIAL ROLE CONFLICT AS A MEASURE OF SOCIAL ROLE PRIORITY**

*Janice A. Miskowiec (Dr. Richard Seefeldt), Department of Psychology, University of Wisconsin-River Falls, 410 S. Third Street, River Falls, WI 54022.*

The research intended to indirectly measure the priorities of different social roles; and determine the most pertinent role conflicts for college students. The roles measured were family, friends, work, significant other, religion/beliefs, school, and society (norms). The Social Role Conflict Test, developed to measure role priority, consists of hypothetical scenarios in which two social roles conflict. The scenarios set the roles in a situation of moral conflict, and participants had to choose a behavior in favor of one role over the other. The behavioral choice acted as an indirect measure of role priority. Thirty-five participants were asked to rate the difficulty of making the decision between the two. This resulted in a role hierarchy that was compared to a self-report rank list of role priority of the roles assessed in the SCRT. These two measures did not significantly correlate. Though the mean responses of the rates of difficulty between different situational conflicts was statistically significant. The need for clarification of values studies offers a possibility to explain the discrepancies between the participant's rank list and the SCRT.

## **ADOPTION STUDY ABSTRACT**

*Adriana Monti, Inger Nelson (Dr. Gloria Fennell), Social Work Department, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

This is a research study designed to gain insight into how children perceive and have experienced the adoption process. Information from this qualitative analysis could be used in the professional field to help determine the adequacy of pre and post adoptive services for children and their families. It is anticipated that this preliminary study will assist in determining if additional study is needed. Children are the subjects of this study in order to get their personal perspective and to gain appreciation for the adoption process as they have experienced it. It is important that the current family has formally adopted the child for at least two years prior to the study in order to provide for adjustment into his/her environment. The study will be conducted in a structured interview format with the one of the researchers and the child. The format entails ten open-ended questions designed to facilitate discussion about the child's experience. The potential exists to begin a process that will result in adopted children having an important voice in recognizing the ways in which current adoption procedures are effective and ways in which they might be improved.

## **LEAVING INDUSTRIAL ARTS BEHIND: A CURRICULUM FOR INTEGRATED TECHNOLOGICAL LITERACY**

*Robin M. Morgan (Dr. Robert J. Horan), Department of English and Philosophy, University of Wisconsin-Stout, P.O. Box 790, Menomonie, WI 54751-0790.*

In our increasingly technologically dependent society, our students need preparation in technological principles, practices, and literacy. However, many technology education courses offered to our elementary, middle, and secondary students leave technological principles in the shadows in favor of a traditional industrial arts course. Industrial arts courses cater to roughly ten percent of the school population, and of those ten percent, less than two percent find a career through their class' occupational thrust. Poorly

preparing ten percent of the school to thrive in our technological society is unforgivable; thus began the quest for a better course for students. To define technological literacy and identify the practices and principles that control technology, I relied on the guidance of faculty in the University of Wisconsin-Stout Technology Education program, along with extensive discussion with parents and teachers of today's technology students. The result is an integrated curriculum for seventh grade technology education students. It is meant to be taken by all students, regardless of their post-secondary school goals. Since the hidden curriculum of a classroom often has longer lasting effects on the students than the planned curriculum, the "hidden curriculum" of this program will be dissected to display the overt goals written in to the classroom policies of this course.

### **A COMPARISON OF ATHLETIC IDENTITY, GENDER ROLE ORIENTATION, AND DRINKING BEHAVIOR OF WOMEN IN THE UNITED STATES AND AUSTRALIA**

*Amber E. Murray (Dr. Matthew J. Taylor), Department of Psychology, University of Wisconsin- La Crosse, 1725 Sate Street, La Crosse, WI 54601.*

The relationship between athletic identity, gender-role orientation, and drinking behavior among college-aged women from the United States and Australia was explored. Athletic identity refers to the extent to which individuals identify with an athletic role. Limited research has been done to explore the relationship between athletic identity and gender role orientation as well as the relationship between athletic identity and drinking behavior. Participants from the United States and Australia (N=301) completed an anonymous, paper-and-pencil questionnaire addressing the variables noted above. ANOVA suggests that participants with a predominately masculine gender role orientation had higher athletic identity. Results also suggest that participants from the United States reported a higher mean score in athletic identity. Additionally, participants from the United States reported a higher level of alcohol-related problems. However, there were no findings that suggested differences in reported level of alcohol use. Future research should focus on clarifying the construct of athletic identity and its relation to variables such as the ones studied in this project.

### **PASS THE VEGETABLES PLEASE: A STUDY OF VEGETARIANISM**

*Katharine C. Nee (Wava G. Haney), Department of Anthropology and Sociology, University of Wisconsin-Richland Center, 1200 Highway 14 West, Richland Center, WI 53581-1399.*

Data gathered from key informants, by participant observation and from secondary sources is used to develop an ethnographic project on the culture of vegetarianism. The key informants were seven vegetarians with a wide range of reasons to practice this lifestyle, and each of whom observe a different form of vegetarianism. The paper explores the lifestyle of some who eat fish but no other meat, some who eat fish and poultry, some who eat eggs and/or dairy, and some who eat strictly vegetables, but all of whom regard themselves as vegetarians. In addition, the researcher, a meat eater, ate a lacto-vegetarian diet for two weeks. While she found that being a vegetarian takes discipline and careful planning, this part of the research also provides a more intimate understanding of the culture being studied. The final section of the paper explores the role of vegetarians in food distribution and health and environmental issues.

## **INTERCULTURAL INTERACTIONS AS DISPLAYED IN “A WEDDING STORY”**

*Danica J. Nelson (Wendy Leeds-Hurwitz), Communication Department, University of Wisconsin-Parkside, 900 Wood Road, Kenosha, WI 53141.*

I am examining the ideas proposed in *Wedding as Text: Communicating Cultural Identities through Ritual*, by Wendy Leeds-Hurwitz, about the various types of intercultural weddings. Leeds-Hurwitz uses personal interviews with actual intercultural couples about how they negotiated the unique issues that surface when planning a wedding of two separate faiths, cultures, races, nations, and classes. She uses the metaphors of the melting pot, the salad bowl, the mosaic, the quilt, and the tapestry. Through these metaphors and with examples from specific couples, she explains how symbols create desired meanings in ritual. I will be reflecting on the ideas in *Wedding as Text*, and testing the conclusions in a different context. I will analyze data from the television show *A Wedding Story* to see if it supports, expands, or contradicts the results of the interview data. *A Wedding Story* documents the events leading up to and encompassing the wedding of various real couples, some of whom are intercultural; these examples caught my attention as a casual observer. While contextualizing each couple's decisions about the logistics of their wedding, I plan to pay particular attention to the traditions and customs that the couple chose to include, revise, or omit from their wedding.

## **A CHORAL CONDUCTORS APPROACH TO MESSE “CUM JUBILO” BY MAURICE DURUFLE’**

*Chrisotopher S. Owen (Matthew L. Faerber), Music Department.*

This is a choral conductor's perspective of Maurice Duruflé's Messe “*Cum Jubilo*.” A brief biography of the composer is included, as well as a history and brief analysis of the piece, identification and possible solutions of pedagogical problems found in the Mass, and a discussion of principle conducting difficulties inherent in the work.

## **THE EFFECTS OF BODY MECHANICS INSTRUCTION ON OCCUPATIONAL PERFORMANCE**

*Julie N. Peeters, Jay M. Gerzmehle, Sylvia S. Ho, Josh M. Nielsen (Robin McCannon, OTR), Occupational Therapy Department, University of Wisconsin-La Crosse, 1725 State Street, La Crosse, WI 54601.*

Grandjean (1981) reported that 8 out of 10 people experience low back pain to a significant degree during their lifetime. This study evaluates the effectiveness of teaching methods utilized during an injury prevention program that provides instruction on proper lifting techniques and evaluates the effects of motor learning over time. Fifty-two subjects were divided into three groups: control, minimal instruction, and maximal instruction. Both instruction groups received basic lifting instruction. The minimal group practiced the lifting task once and was not given feedback on their performance. The maximal group received verbal and tactile feedback on their performance and practiced the lifting task repeatedly until the subject performed the lifting task correctly. Peddie (1995) stated practice alone does not assure the skills will be properly learned; the practice must be correctly performed. A pretest was completed prior to the training

session. The first posttest was completed within 24 hours of the training session. The second posttest was completed 4 months post-training to assure learning occurred over time. Schmidt (1988) reported that performance should be assessed later to estimate learning. A criterion referenced score sheet was used to analyze data obtained through observation of the videotaped performance of subjects completing the task.

### **A DEMONSTRATION OF THE GALILEO MAGNETOMETER EVIDENCE FOR A SUBSURFACE OCEAN ON EUROPA**

*John A. Peterson (J. Erik Hendrickson and Paul J. Thomas), Department of Physics and Astronomy, 105 Garfield Avenue, University of Wisconsin-Eau Claire, Eau Claire, WI 54702-4004.*

Recent magnetometer data from the Galileo spacecraft indicates a suppression of the background Jovian magnetic field in the vicinity of the satellite Europa. This effect has been interpreted as an induced secondary field, which would require a subsurface conducting medium to carry an electric current. Since Europa is observed to have an icy outer shell of thickness ~100 km and is tidally heated by an orbital resonance with two neighboring satellites, it is likely that this conducting medium is a subsurface saline ocean of liquid water. We present a classroom model of the induction effect that is believed to account for the Galileo magnetometer data. In this model, a small sphere is immersed in a periodically fluctuating magnetic field, representing the Jovian magnetic field surrounding Europa. A Hall effect magnetic probe is used to measure the induced magnetic field. The sphere can either be metallic (highly conducting), containing saline water (moderately conducting) or insulating. Results of this model with appropriate scaling to the length scales and magnetic field strengths of Europa will be presented.

### **FROM FUNCTION TO SYMBOL: THE CHANGING WORLD OF HMONG MUSIC**

*Nicholas F. Poss (Gretchen Peters), Department of Music, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI, 54702-4004.*

Over the summer and fall of 2000, the author conducted field research in Eau Claire, Wisconsin, studying musical change within the Hmong community. Beginning in 1975 Hmong refugees began immigrating to America, and over the past twenty-five years, their way of life has been drastically altered as they have assimilated into American culture. The purpose of this inquiry was to examine how music, which has always been central to Hmong culture, is being adapted to their new lifestyle. Interviews and performances of numerous musicians, community leaders, and students were filmed for the study. Early in the research, it appeared that the traditional repertoire was being lost as Western musical forms competed for time and attention in the community. Further analysis concluded that in fact rather than losing music, it was simply the function of music in the culture that was changing, causing some genres to become more or less prevalent. The presentation explores both the traditional musical practices of the Hmong and the forms which have developed in America and demonstrates how these fulfill cultural functions.

### **SHELLEY'S HARSH JUSTICE: THE MURDER TRIAL OF JUSTINE MORITZ**

*Aaron J. Schneider (Marguerite Helmers), Department of English, University of*

*Wisconsin-Oshkosh, 800 Algoma Boulevard, Oshkosh, WI 54901.*

In my essay, I use Cultural Materialism to examine the trial of Justine Moritz in Mary Shelley's *Frankenstein* (1818). During the trial, Shelley criticizes the legal process but in the end, she submits to the rules of the law by having Justine hanged despite her innocence. I am able to prove Shelley's submission to the law by using Althusser's definition of ideology in his essay "Ideology and Ideological State Apparatuses" (1971). Althusser's essay describes how the ruling class "interpellates" people into adopting their ideology through Ideological State Apparatuses (I.S.A.'s). One such I.S.A. is the justice system. My essay proves that Shelley was not able to escape being interpellated by this I.S.A. because the "saintly" Justine was ultimately hanged for a crime she did not commit. However Althusser's definition of ideology does have exceptions as Alan Sinfield points out in his essay "Cultural Materialism, Othello, and the Politics of Plausibility" (1992). In order to determine whether or not the trial of Justine supports or dissents from the dominant ideology of the ruling class, I consider the historical context that produced Shelley's *Frankenstein*. I achieve this by examining the life of William Godwin, Shelley's father, and his novel *Caleb Williams* (1794).

### **THE PACKER TAILGATING CARNIVAL: LITERARY THEORY IN REAL LIFE**

*Nicole Elizabeth Schumacher (Dr. Aeron Haynie), English Department, University of Wisconsin-Green Bay, 2420 Nicolet Drive, Green Bay, WI 54311-7001.*

Using literary theorist Mikhail Bakhtin's concept of carnival, a genuine example of the "carnavalesque" will be illustrated in Green Bay Packer pre-game tailgating. Bakhtin's four major criteria of carnival will be introduced and specific, often tangible, symptoms manifested within each category will be drawn on as supporting evidence. Frequently overlooked carnival-inducing factors and the significant ramifications of carnival culture will be addressed with a specific focus on the carnival's ability to maintain hegemony—a contradiction to Bakhtin's literary assertions.

### **PERCEPTIONS OF MALE AND FEMALE RAPE VICTIMIZATION AS MODERATED BY PERCEIVED ATTRACTIVENESS**

*Dan J. Seaman, Melissa E. Werlinger, Keri A. Wolter (Carmen Wilson Van Voorhis), Department of Psychology, University of Wisconsin-La Crosse, 1725 State Street, La Crosse, WI 54601.*

A detailed investigation on the perceptions of male and female rape victimization and the influence of victim gender and attractiveness level was assessed across four manipulated conditions. Fifty female undergraduate psychology students from the University of Wisconsin-La Crosse read a rape scenario, with an accompanying photograph of the victim, and answered a questionnaire regarding perpetrator sentencing, victim responsibility, victim encouragement and likelihood of rape. Everything remained constant in each group, except for the gender and attractiveness level of the presumed victim. Separate 2 (Victim Gender: male, female) x 2 (Victim Attractiveness: attractive, unattractive) factorial analyses of variance were computed for each of the eleven dependent variable participant questions. Overall, unattractive victims were perceived as initiating, encouraging, and provoking the sexual acts. Furthermore, they were also considered to be more responsible for the incident compared to their attractive

counterparts. Possible explanations may be found in the adherence to socially accepted stereotypes and beliefs in the attractiveness phenomenon and just-world hypothesis.

### **PHOSPHORUS CYCLING IN MADISON, WI AREA LAKES**

*Emily A. Spargo, Stephanie L. Johnson (Dr. Michael R. Penn), Department of Civil and Environmental Engineering, University of Wisconsin-Platteville, 1 University Plaza, Platteville, WI 53818-3099.*

Madison, WI area lakes suffer from poor water quality due to excessive nutrient (phosphorus) inputs. Many studies have been conducted to determine the amount of phosphorus (P) which enter the lakes. P loadings are primarily from non-point sources such as urban and agricultural runoff. No recent studies have attempted to quantify the amount of P which cycles from the underlying sediments into the lake water. This research project looks at P cycling exclusively in Lake Mendota. Sediment core samples were taken at two locations in fall and winter. Experiments were developed to sample the water above the sediment for P release over time. This information was then used to calculate the amount of P released over the entire lake bottom. The “internal” P load can be compared to external loads to determine its significance as a contributor to water quality problems. This research will be combined with sediment chemical analysis to predict the amount of time it will take to “flush out” all of the P from Lake Mendota after external loadings are minimized.

### **INFORMAL LABELING OF STUDENTS: EFFECT ON FUTURE TEACHERS**

*Sandra Stanke (Kathleen Stetter), Department of Psychology, University of Wisconsin-Oshkosh, 800 Algoma Boulevard, Oshkosh, WI 54901.*

Findings supporting that labeling bias exists could have far reaching implications. Caution against this phenomena could be addressed as future teachers receive training. Labeling could affect children’s educational careers, cumulating in choices that influence a lifetime. Research has examined formal labels, but little has been done to examine the effects of informal label or “teacher talk.” This experiment addressed informal labels (positive, negative, or no label) given to children in educational environments, and evaluated how 30 teachers in training viewed a child’s behavior, dependent upon the informal label. I demonstrated how “teacher talk” affected expectations of a child’s future academic and social success. Participants selected a disciplinary response appropriate as that child’s teacher and made predictions about the child’s future success. A single factor repeated measures analysis of variance indicated significant effects for labels and no labels for both response severity and ratings of social and academic success. Participants also completed a forced-answer questionnaire regarding their wish to be informed of the child’s behavior from last year’s teacher. This measured how teachers inadvertently propagated informal labeling and its possible negative repercussions. Findings supporting labeling bias have far reaching implications. Caution against this phenomenon could be addressed as future teachers receive training or current teachers receive in service.

### **VIBRATIONAL SPECTROSCOPY OF PARTIALLY BONDED COMPLEXES: A MATRIX ISOLATION INFRARED STUDY OF CH<sub>3</sub>CN–BF<sub>3</sub>**

*Nathan P. Wells (James A. Phillips), Department of Chemistry, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

The complex formed from acetonitrile (CH<sub>3</sub>CN) and boron trifluoride (BF<sub>3</sub>), has been called a “partially bonded molecule” since its B-N bond distance and N-B-F bond angle are intermediate between those characteristic of a weak, non-bonded interaction (e.g. N<sub>2</sub>-BF<sub>3</sub>) and a *bona fide* donor-acceptor bond (e.g. H<sub>3</sub>N-BF<sub>3</sub>) [1]. Furthermore, complexes like this have been shown to be quite sensitive to chemical medium, and in particular, undergo dramatic structural rearrangement upon crystallization. We have set out to explore the effects of these intermediate interactions on the rigidity of the bonds in the component species through an examination of the complexes’ vibrational spectra in low temperature (~10K) inert gas matrices. To date, we have observed and identified five new absorption features in argon matrices seeded with 0.1-1.0% CH<sub>3</sub>CN and BF<sub>3</sub> that we assign to the 1:1 complex. The basis for these assignments is: dependence on both BF<sub>3</sub> and CH<sub>3</sub>CN, consistent relative intensities across a wide range of conditions, and a <sup>10</sup>B-<sup>11</sup>B isotope shift consistent with recent calculations [2] on the gas-phase complex. These observations indicate that, contrary to previous studies [3], that matrix-isolated CH<sub>3</sub>CN-BF<sub>3</sub> more closely resembles the gas-phase complex than the crystalline species.

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2. Cheong, B.; Cho, H. *J. Mol. Struct. (Theochem)* **2000**, *486*, 185.
3. Beattie, I. R.; Jones, P. J. *Agnew. Chem. Int. Ed. Engl.* **1996**, *35*, 1527.

### **SYMBOLIC INTERACTIONISM AND TEENAGE IDENTITY: “SHE’S ALL THAT” AS AN EXEMPLAR**

*Nicholas C. Wilkie (Susan Hafen), Department of Communication and Journalism, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*  
George H. Mead’s theory of the self-concept, coined “symbolic interaction” by his student and disciple, Herbert Blumer, describes the self as a “looking glass” that reflects how we imagine we look to other people. Never is this “looking glass” more present than in the teenage years, when adolescents shift from their family for a sense of who they are to their peers. Only in the eyes of their peers are teenagers primarily affirmed, rejected, categorized, stamped, and labeled. This paper applies the theoretical tenets of symbolic interaction to the communicative interactions in high school that demarcate and split a teenager’s sense of self into what Mead calls the subject “I” position versus the object “me” position. To do this analysis, the author uses the coming of age film, “She’s All That,” as well as his own experiences growing up with cerebral palsy. This paper also uses research on adolescents’ self-concepts to posit, along with Mead and Blumer, that only through interactions with others—which we can shape as well as react to—do we define our “self.”

### **Poster Sessions**

#### **DISTRIBUTION, MOVEMENT, AND BEHAVIOR OF COHO SALMON, *Oncorhynchus kisutch*, DURING THE SUMMER REARING PERIOD IN THE ONION RIVER, A LAKE SUPERIOR TRIBUTARY**

*Matthew Allen, Ryan Franckowiak (Dr. David Lonzarich), Department of Biology, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*  
In their native range of western North America, coho salmon (*Oncorhynchus kisutch*) are exposed to a variety of population controls during their freshwater residency. The first

summer is particularly stressful, as low stream flows create conditions that intensify biotic interactions, limit distribution and select for aggressive and sedentary behaviors. Testing the premise that flow conditions can shape the ecology of juvenile salmon, we examined how periodic summer flooding in a tributary stream of Lake Superior, Wisconsin affected the distribution, movement and social structure of a population established in the drainage in the 1970s. Snorkeling approximately 2 kilometers of the stream at ten-day intervals in summer 2000, we found that salmon occupied a wide range of habitats; that they moved a great deal; and that they were as likely to occur in aggregations as they were in social hierarchies. We suspect that the variable summer flows in this stream may alter the nature of intraspecific interactions by limiting the ability of salmon to establish social hierarchies. These results raise the possibility that coho salmon might be adapting to the environmental challenges of streams in this region.

### **ARE MALES OR FEMALES MORE VENGEFUL? PERPETRATORS, VICTIMS, AND SEX-ROLE IDENTIFICATION**

*Stacy J. Anderson, Elisha Ann Poppitz, Amanda M. Fischer (William Douglas Woody), Department of Psychology, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

Revenge is a pervasive social problem that has received only little attention from social psychologists. Specifically, the effects of gender on various aspects of revenge remain largely unknown, and the present research addressed possible influences of gender on vengeance. Participants read 18 scenarios, each of which depicted a male or a female committing an act that could elicit revenge, and participants indicated whether they would seek revenge in that situation. Two counterbalanced versions of the scenarios were used; both versions depicted nine male perpetrators and nine female perpetrators. The gender of the perpetrator of each scenario was counterbalanced between versions so that each scenario was presented with a male perpetrator to half of the participants and with a female perpetrator to half of the participants. After responding to the scenarios, participants completed a demographics questionnaire, the Vengeance Scale, and the Personal Attributes Questionnaire (PAQ). Data analysis is in progress. Expected results include (a) males will be more vengeful than females and (b) participants will be more vengeful toward same-gender perpetrators. Data from the PAQ will be used to investigate potential relationships among gender, traditional sex-role identification, and attitudes toward revenge.

### **TOBACCO FREE YOUTH: A PREVENTION PROGRAM FOR YOUTH**

*Joy Averill (Justin A. Odulana), Department of Health Education and Health Promotion, Community Health Education, University of Wisconsin-La Crosse, 1725 State Street, La Crosse, WI 54601.*

According to Healthy People 2010, the age of first cigarette use is 12. Additionally an estimated 3 million adolescents currently smoke with another 1 million beginning each year. This poster presentation of "Tobacco Free Youth" includes various smoking alternative activities for students.

### **THE EFFECTS OF PERCEIVED NEED AND ATTRIBUTIONS OF RESPONSIBILITY ON ALTRUISM**

*Brian J. Ayotte (Kathleen Stetter), Department of Psychology, University of Wisconsin-Oshkosh, 800 Algoma Boulevard, Oshkosh, WI 54901.*

This study investigated responsibility attributions (blame) and perceived need on altruism. This study improved upon past research by using continuous measures (time offered to help and latency of response) instead of the discrete measure of whether or not help was offered. These measures avoid the possibility of ceiling effects and allow the use of parametric statistics. Randomly selected participants ( $n = 160$ ) were called and asked to respond to a survey for a “student” in high or low need and who was to blame or not blame for their situation. The results of the 2 (Gender) X 2 (Need) X 2 (Blame) study found that significantly more time was offered in the high need group [ $F = 40.94(1, 152)$ ,  $p < .001$ ] and the low blame [ $F = (1, 152)$ ,  $p < .05$ ]. Latency of response was significantly lower in the low blame group [ $F = 23.08(1,152)$ ,  $p < .001$ ] and the high need group [ $F = 15.78(1, 152)$ ,  $p < .001$ ]. No gender differences or correlations between time constraints and helping behavior were found. This study contributes two new dependant variables that can be used to measure helping behavior. It may also help people request help more efficiently.

## **THE EFFECT OF SERUM ALBUMIN ON AMPHOTERICIN B FORMULATIONS**

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It has been demonstrated that mild heat treatment of Fungizone (Amphotericin B: deoxycholate formulation) leads to a super-aggregated form (“Hot Zone”) that demonstrates reduced toxicity in vitro and in vivo in a manner reminiscent of new liposomal Amphotericin B preparations. Some liposomal Amphotericin B preparations’ reduced toxicity may be related to significant differences in serum lipoprotein distribution compared to Fungizone. However, our previous whole serum distribution studies have shown that both Fungizone and Hot-Zone are predominately present in the lipoprotein deficient portion of serum (mostly albumin) with some small difference in lipoprotein distribution. Thus, we have investigated the effect of human serum albumin (HSA) on the stability and in vitro channel forming ability of these two preparations against model fungal and mammalian membrane vesicles. Kinetic and CD spectra show that Fungizone is rapidly converted from its aggregated form to a bound monomer in the presence of HSA, while Hot-Zone demonstrates greater stability by persisting as a stable inactive aggregate. Our stopped-flow fluorescence measurements of ion currents show that HSA attenuates the membrane-activity of both preparations. However, the efficacy of Hot-Zone against model fungal membranes is comparable to that of Fungizone (especially at low concentrations) while the activity against model mammalian membranes is still reduced. These data provides a rationale for the similar efficacy and lower toxicity of Hot-Zone.

## **CAMPUS CLIMATE: BE ALL IT CAN BE**

*Len Booth, Victoria Mahboub, Terra Wendricks (Mary Kay Schleiter), Department of Sociology, University of Wisconsin-Parkside, 900 Wood Road, Kenosha, WI 53141.*

We are concerned about the campus climate for students from under represented groups; how students from various groups feel about the campus and how successful the campus

is in providing a comfortable environment for learning. We are administering a survey by mail of the students of UW-Parkside asking various campus climate questions. The questions include scales which measure social distance, stereotypes and how students feel they are represented on the college campus. Students were selected randomly to participate. We are coding the results to later analyze the data.

### **ANXIETY AND THE PRACTICE OF PRE-COMPETITION SUPERSTITIOUS RITUALS**

*Sheila M. Bowman (Emily J. Johnson), Department of Psychology, University of Wisconsin-La Crosse, 1725 State Street, La Crosse, WI. 54601.*

Twenty-nine National level collegiate swimmers (19 male, 10 female; mean age of 21.06 years, range 19-22 years of age) completed 3 psychometric questionnaires prior to competing in the British Universities Sports Association National Long Course Swimming Championships. The questionnaires were the Competitive Worries Inventory (CWI), an adapted superstitious/ritualistic behavior questionnaire, and the Sport Competition Anxiety Test (SCAT). Anxiety has been defined as a subjunctive feeling of apprehension or perceived threat, sometimes accompanied by heightened physiological arousal. As such, athletes in competitive situations are prone to anxiety. Previous research attempts to rationalize as to why superstitious rituals enhance performance through the reduction of anxiety, by using the physical or cognitive practices as a coping strategy. Results examine the relations between the scores on the anxiety measures and superstitious behavior. Gender differences were also examined with regard to superstitious/ritualistic behaviors.

### **POPULATION ESTIMATES AND HABITAT SELECTION OF FLAT-TAIL HORNED LIZARDS, PHRYNOSOMA MCALLII, IN THE COACHELLA VALLEY PRESERVE, CA**

*Valerie L. Boyarski (Dr. Paula Kleintjes and Dr. Michael Weil), Department of Biology, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

A number of studies suggest that habitat loss, fragmentation, or degradation leads to population declines of flat-tail horned lizards, *Phrynosoma mcallii*. In my study, two populations of *P. mcallii* inhabiting the Coachella Valley Preserve (CVP), CA were examined during July and August 2000. The purpose of my study was to 1) estimate population size of *P. mcallii* along two transects within the preserve, 2) correlate sand compaction with substrate preference, and 3) correlate population size of *P. mcallii* with abundances of harvester ants. Data were collected by tracking and capturing *P. mcallii* along two line-transects. Following capture, each individual was marked, weighed, measured, and sexed. Both ambient temperatures and Universal Transverse Mercator (UTM) coordinates were recorded for the locations where each lizard was sighted. Sand compaction values and ant abundances were also determined at various points along the two transects. Numbers and sizes of individuals varied between males and females. Using satellite imagery, it was determined that lizards preferred one type of substrate along transect 1 but not along transect 2. There may be potential for locating other populations of *P. mcallii* within the CVP using satellite imagery if habitat preferences can be used as indicators of lizard presence.

## **ISOLIZATION AND CHARACTERIZATION OF TCK REGULATORY SEQUENCES**

*Aaron M. Broege, Hilary A. Preis (Jon Scales), Department of Biology, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

During embryonic development, cells use specific surface receptors to guide their way around the organism. One such receptor, TCK, a member of the Eph-class receptor tyrosine kinases (RTKs), is of particular interest to us. Previous experiments (Winning, et. al, Dev Bio 179:309 (1996); Scales, unpublished data) have determined that some Eph RTKs function in cell-cell adhesion complexes. The specific function of TCK, however, remains unknown. To determine the function of TCK, we have isolated the entire gene as a set of small, unordered, overlapping sequences. By last summer (2000), we generated a low resolution restriction map, allowing us to arrange the fragments. Our task has now become one of sequencing the most promising genomic DNA fragments in order to identify the transcriptional control regions upstream of the gene itself. Once they are identified, we will be able to generate expression constructs to test the regulatory sequences. The final step in the process will be to produce transgenic frogs that will express mutated forms of the gene, allowing us to investigate TCK's biological function.

## **NEITHER OBJECTIFICATION NOR SEX ATTENUATE THE ATTRACTIVENESS OF LARGE BUSTS**

*Jennifer L. Brown, Angel Beyers (Regan A. R. Gurung), Department of Human Development, University of Wisconsin-Green Bay, 2420 Nicolet Drive, Green Bay, WI 54311-7001.*

This research measured sex differences in rating attractiveness of women with varying bust size and waist to hip ratio (WHR) and tested whether social comparison has an influence on one's mood. Using 40 female and 25 male university students, participants were questioned on the characteristics they considered attractive in dating partners using the Objectification Scale (Frederickson & Noll, 1998) and a pre-measure of mood. Upon viewing realistic profile and frontal views of 8 female students, participant mood was again measured. Analysis indicated that larger busts are rated as more attractive and did not differ by gender. Both men and women rated the images of women with larger busts as more attractive than the women with smaller busts. Additional results suggest that viewing pictures of women did impact the mood of some female participants. Correlations of sex indicated a relationship between the higher ratings of attractiveness and the more stress experienced by the participant during the study. These findings suggest that differences in bust size do relate to attractiveness and can influence the mood of some individuals.

## **EXERCISE INCREASES COLLEGE SATISFACTION AND EFFICIENCY**

*Brad T. Brzozowski (Regan A. R. Gurung, Ph.D.), Human Development and Psychology, University of Wisconsin-Green Bay, 2420 Nicolet Drive, Green Bay, WI 54311-7001.*

This study examined exercise and its effects on college/job satisfaction and efficiency using 63 members of university health programs and psychology courses. Prior research had shown limited focus on exercise benefits in the college and university setting. Measures were taken longitudinally with questionnaires at the 4<sup>th</sup> and 14<sup>th</sup> weeks of a semester. Correlational and multiple regression analyses were used to test the hypothesis

that increased amounts of exercise would yield higher levels of satisfaction and efficiency. At both points in the semester, it was found that subjects with higher levels of depression were less efficient and satisfied with their job or college life, while those who exercised regularly reported lower levels of stress and depression. In addition, satisfaction and efficiency measures were also influenced by exercise barriers such as physical pain, cost, and difficulty of exercising. Findings confirmed the hypothesis, demonstrating psychological benefits of exercise in a college setting and providing evidence of relationships between college/job satisfaction and efficiency, psychological health, and physical activity. Results also provide important areas to focus on in an effort to increase exercise in college settings.

### **HEALTHY SNACKN' KIDS: AN INTERACTIVE NUTRITION PROGRAM FOR CHILDREN**

*Stephanie Bubolz (Justin A. Odulana), Department of Health Education and Health Promotion, Community Health Education, University of Wisconsin-La Crosse, 1725 State Street, La Crosse, WI 54601.*

Good nutrition habits are the basis for a healthy lifestyle. These habits often begin in childhood. In this poster session, the program: "Healthy Snackn' Kids" designed for young children will be presented together with the results of the kids' reaction after implementation.

### **TWO INCREDIBLE WOMEN: AN ETHNOGRAPHIC ESSAY ON THE LIVES OF A MOTHER AND HER DAUGHTER**

*Faye M. Burghagen (Wava G. Haney), Department of Anthropology and Sociology, University of Wisconsin-Richland, 1200 Highway 14 West, Richland Center, WI 53581-1399.*

This ethnographic project brings together two cultures and two women of different generations to explore extraordinary differences in the lives of a mother and her daughters. The life of the immigrant woman began in Germany in the 1920s and 1930s and continued in the U.S., where her daughters were born. One key informant, a daughter, spoke many times over a period of two months with the researcher, while the other key informant, her mother, was introduced to the researcher by her daughter via email and that format was used to collect the mother's story during this same period. While showing the efforts of a family to hold together under extreme conditions of cultural repression, the major themes of the paper are changes in mother-daughter relations across three generations and between men and women over two generations -- from mother and father to daughters and their husbands. In one generation, these women's work lives changed from reproduction to the double shift of production and reproduction.

### **DGPS SURVEY OF WHITE PINES IN PUTNAM PARK, EAU CLAIRE, WI**

*Alison J. Bush, Sarah C. Mindel, Lisa A. Schretenthaler (Sean G. Hartnett), Geography, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, Wisconsin 54702-4004.*

Putnam Park contains some of the few remaining majestic white pines (*Pinus strobes*) in the area. This project involved the completion of a detailed Differential Global Positioning System (DGPS) survey of the white pines in the park. The data was collected

using a Trimble Pro XR DGPS unit that records latitude, longitude and elevation positions with sub-meter accuracy. Additional data collected included health, age, diameter, and estimated height along with the digital image of the tree. All the data will be combined on an ArcView GIS database and plotted onto the digital orthophoto quadrangle (DOQ) and onto a digital elevation model (DEM) of Putnam Park. This data will be presented in a series of detailed maps and an interactive web page where users can point and click on map objects retrieving information on the individual trees.

### **ROLE OF HFLKC IN RHODOBACTER SPHAEROIDES**

*John A. Cairo (Robert D. Barber), Department of Biology, University of Wisconsin-Parkside, 900 Wood Road, Kenosha, WI 53141.*

The *hflKC* genes and their protein products have been extensively studied in the bacterium *Escherichia coli* and were initially identified for their role in controlling levels of bacteriophage  $\lambda$  cII transcriptional regulator. Further studies of *hflKC* in *E. coli* revealed these gene products form a protein complex that is chiefly located in the periplasmic space and operates as a modulator of the cytoplasmic membrane protease, *ftsH*. *FtsH* appears to be ubiquitous in biology and has been shown to be essential for viability in several organisms. Similarly, *HflKC* are members of a widespread family of proteins that regulate *FtsH* activity including prohibitins and stomatin-like proteins. In the present study, the role of *hflKC* in the facultative photosynthetic bacterium *Rhodobacter sphaeroides* was investigated to attempt to confirm the function of the protease it modulates, *ftsH*. Following cloning of the *hflKC* genes using PCR, null alleles were constructed using an *in vitro* transposon-mediated system (Epicentre™). Subsequently, *R. sphaeroides* strains lacking *hflKC* activity will be constructed by transfer of null alleles via conjugation and selection of double recombinants. Potential phenotypes resulting from loss of *HflKC* function will be discussed.

### **MOTIVATIONS FOR REVENGE: INDIVIDUAL BIASES AND GENDER BIASES**

*Heather A. Carden, Rebecca A. Kelm, Davin Mikkonen (William Douglas Woody), Department of Psychology, University of Wisconsin–Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

The motivations of the perpetrator of an offensive act may impact the victim's decisions of whether to seek revenge, but little is known about characteristics of offenses that may justify vengeance. The present research compared offenses committed against an individual due to personal bias with offenses committed against an individual due to gender bias. Participants read 16 scenarios, each of which depicted a perpetrator committing an act that could elicit revenge, and participants indicated whether the victim in each scenario was justified in seeking revenge. Four counterbalanced versions of the scenarios were used; all versions depicted eight acts motivated by personal bias and eight acts motivated by gender bias, and all versions depicted eight acts directed against a man and eight acts directed against a woman. Participants completed the Vengeance Scale and the Personal Attributes Questionnaire (PAQ). Data analysis is in progress. Expected results include (a) participants are expected to perceive revenge as more justified if acts are committed against an individual due to gender bias instead of due to personal bias and (b) a participant will perceive vengeance as more justified when the bias is against the

participant's gender. Data from the PAQ will be used to investigate potential relationships among gender, traditional sex-role identification, and attitudes toward revenge.

### **PRELIMINARY INVESTIGATIONS AT 47LC480, THE SKEMP SITE,: AN AGATE BASIN OCCUPATION IN WESTERN WISCONSIN**

*Dillon H. Carr (Constance Arzigian), Mississippi Valley Archaeology Center, University of Wisconsin-La Crosse, 1725 State Street, La Crosse, WI 54601.*

In the fall of 2000 archaeological fieldwork was conducted at 47LC480, The Skemp Site. Surface collections at the site by the landowner have revealed the presence of a strong Late-Paleoindian occupation which date to roughly 10,500 – 8,000 years B.P. (Before Present). While the fieldwork has shown that the entire site lies within a disturbed context contained in the plowzone, the surface collection allows for generalizations about the sites use within the landscape. This allows for interpretations to be made about Paleoindian settlement within the immediate region, and to offer further insight into our understanding of Paleoindian mobility.

### **EXAMINATION OF EXERCISE ON CEREBELLAR CELL DEATH FOLLOWING BILATERAL SENSORIMOTOR CORTEX ABLATION**

*Andrew D. Clithero (Rodney A. Swain), Department of Psychology, University of Wisconsin-Milwaukee, 2310 E. Hartford Avenue, Milwaukee, WI 53211.*

Current rehabilitation techniques following stroke or other brain trauma include exercise as a form of promoting faster recovery. This exercise is usually in the form of walking or running on a treadmill. Recent research by Powell and colleagues (2000) indicates that the type of exercise engaged in following trauma greatly impacts the amount of recovery. Their study reported that mild exercise (similar to walking on a treadmill) greatly reduces cerebellar plasticity and that the exercise may actually promote further cell death in the cerebellum. Although they did not directly examine the reasons for the increased cell death, they hypothesized it may possibly be due to increases in intercellular calcium levels as a result of over stimulation from exercise. As the previous study was not designed to test this hypothesis, the current study directly assesses the effects of exercise on cell death following brain trauma. If our hypothesis is correct and exercise does indeed lead to increases in cell death, it may signal a need to change current rehabilitation techniques.

### **CAMP IN PLASMODIAL DEVELOPMENT OF THE ACELLULAR SLIME MOLD *DIDYMIUM IRIDIS***

*Michelle R. Cullen (Donna Ritch), Department of Human Biology, University of Wisconsin-Green Bay, 2420 Nicolet Drive, Green Bay, WI 54311-7001.*

One of the most important molecules in the eukaryotic cell is cyclic AMP (cAMP). Increases in cAMP levels produce different effects in various cell types. For example, cAMP secreted by the amoeboid cells of the cellular slime mold *Dictyostelium discoideum* triggers the aggregation of amoeboid cells and activates a transcriptional cascade, leading to the emergence of different cell types that organize within the aggregate. In this project the effects of cAMP on the life cycle of an acellular slime mold, *Didymium iridis*, are investigated. In order to illustrate cAMP is important as a signal

transduction molecule in this organism, myxamoebae, plasmodia formed from myxamoebae of compatible mating types, and myxamoebae that have been treated with a cAMP inhibitor have been analyzed for cAMP activity via phosphorylation of cAMP-dependent protein kinase. cAMP is active in untreated myxamoebae and plasmodia formed from these cells. However, when myxamoebae are treated with a cAMP inhibitor, cAMP activity is not evident and the treated cells do not form plasmodia when mated with untreated cells of a compatible mating type. These results demonstrate that cAMP is an important molecule for plasmodial development in *Didymium iridis*.

### **DETERMINATION OF DIPLOIDY IN *XENOPUS TROPICALIS* BY SOUTHERN BLOT ANALYSIS OF SPECIFIC LOCI**

*Christina Dahlke (Jon Scales), Department of Biology, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

*Xenopus laevis* is a traditional tool to study embryogenesis and signaling receptors for development. Not only is the “African clawed frog” easily maintained in the laboratory, it is a source of gene information due to the tetraploid genome and large size of the embryo. *X. laevis* is a logical model system for developing the foundation of developmental biology. However, the polyploid genome may contain genes that are not functional, thus making complex reaction cascades difficult to study. Therefore, a new model system is required to work efficiently and accurately for genetic studies. *Xenopus tropicalis* is thought to have a diploid genome and would simplify genetic studies with more life cycles and fewer chromosomes. The two model systems are also compatible so that strategies and genetic markers can be used for both systems. Eventually, *X. tropicalis* can be a valuable tool for assessing genetic approaches for embryonic development. Determination of diploidy and providing genomic resources for *X. tropicalis* begins the development of a new model system for genetic analysis.

### **PIGEONS PUT MICROECONOMIC THEORY TO THE TEST**

*Jamie M. Dake, Jennifer I. Gross, Bethany R. Raiff (Gregory J. Madden), Department of Psychology, University of Wisconsin–Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

Microeconomics holds that, all else being equal, the labor supplied by a worker and the amount of a commodity consumed with the worker's wages are determined by the commodity's price (price = cost/benefit). We tested the prediction that the manner in which rewards (i.e., the commodity consumed) are scheduled does not affect labor supplied and consumption as long as the overall price of the reward is unchanged. For example, if the cost of a reward is one hour of labor, then we should see no change in consumption or labor supplied if the same reward was given after an average of one hour of work because the overall costs and benefits have not changed. The animal research literature in psychology, however, suggests that the schedule by which rewards are delivered may matter. In our study, four pigeons worked for food rewards at a range of prices. At each price, the animal completed a condition in which the rewards were obtained after a fixed amount of work and another in which rewards were obtained after a variable amount of work; price held constant. Results suggest pigeon workers will work harder and consume more when variable work requirements are scheduled.

### **GALANIN ENHANCEMENT OF GnRH-STIMULATED LUTEINIZING HORMONE (LH) SECRETION IN FEMALE RATS IS STEROID-DEPENDENT**

*Joshua Desotelle, Vicky Plamann, Joseph Scheffen (Dr. Angela Bauer-Dantoin), Human Biology Department, University of Wisconsin-Green Bay, 2420 Nicolet Drive, Green Bay, WI 54311-7001.*

Luteinizing hormone (LH) secretion from the pituitary gland is triggered by the release of gonadotropin-releasing hormone (GnRH) from the hypothalamus. Recent evidence suggests that another hypothalamic factor, galanin, also regulates pituitary LH secretion. Studies in female rats have demonstrated that galanin directly stimulates LH secretion and augments GnRH-stimulated LH secretion. To determine whether the pituitary effects of galanin take place under any steroid conditions or if they are unique to the steroidal milieu that exists just prior to ovulation in females, we looked at the ability of galanin (with or without GnRH) to affect LH secretion in 1) ovariectomized (OVX); 2) OVX, estrogen (E)-primed; and 3) OVX, E and progesterone (P)-treated female rats. Results from the study indicate that the primary pituitary effect of galanin in female rats is to enhance GnRH-stimulated LH secretion and that this effect occurs only in the presence of gonadal steroids. Galanin did not directly stimulate LH secretion or enhance GnRH-stimulated LH secretion in OVX rats without steroid replacement. These findings suggest a role for galanin in regulating pituitary LH secretion at a time during the female ovulatory cycle when levels of gonadal steroids are elevated (i.e., at the time of the preovulatory LH surge).

### **THE EFFECT OF WORKING MEMORY SPAN ON THE ACTIVATION OF PREDICTIVE INFERENCES**

*Laurie Doepki, Sarah Strudle (Allen Keniston), University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

A lexical decision task was used to trace the differences between high and low span readers in the sustained activation of predictive inferences. Participants performed two working memory span tasks, and an inference generation task in which they read foregrounded, backgrounded, coherence, and control versions of predictive inference passages. Each passage consisted of four sentences. The first two sentences contained setting information. The third sentence primed a particular predictive inference. The fourth sentence varied by version. In the foregrounded version, the concept critical to the predictive inference was kept as the focus of processing. In the backgrounded version, the concept critical to the predictive inference was omitted from the sentence. In the coherence condition, the sentence required the participant to make the inference to understand the passage. Preliminary results indicate there are no significant span effects for coherence passages. For backgrounded passages, however, high reading span predicted priming for activation of inference-relevant concepts.

### **IT MAY BE FUNNY, BUT IS IT TRUE? THE POLITICAL CONTENT OF LATE-NIGHT TALK SHOW MONOLOGUES**

*Lindsey Duerst, Glory Koloen (Geoff Peterson), Department of Political Science, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

Research indicates the number of people who turn to late-night talk shows for political news is increasing. A study by the Pew Research Center for Politics found 47% of

Americans between the ages of 18 and 29 gathered significant political information from late-night talk shows. Our goal was to examine the political content of late-night talk show monologues and quantify the amount and types of political information presented in them. cursory examination of any late-night talk show reveals a significant amount of political content. The hosts make jokes at the expense of officials and candidates alike. They cover policy and character issues on a regular basis, and they do not appear to hesitate to attack any available targets. It is this material that we examined in detail. To evaluate the content of late-night monologues, we taped all episodes of the major late-night shows aired from October 1 through November 20. The material was coded based on the nature of the joke (positive or negative) the target, accuracy, and the topic (policy vs. character). We also coded material that does not have a specific individual as the target, but could impact the viewer (such as jokes about the Electoral College).

### **CONSECUTIVE DETERMINATION OF CATIONS AND ANIONS IN BEVERAGE AND WATER SAMPLES USING CAPILLARY ELECTROPHORESIS**

*Franklin J. Erb Jr. (Dr. Martin G. Ondrus), Department of Chemistry, University of Wisconsin-Stout, P.O. Box 790, Menomonie, WI 54751-0790.*

Capillary Electrophoresis (CE) has gained great acceptance due to its high separation efficiency, low sample and electrolyte consumption, short analysis time, and low maintenance cost when compared to ion chromatography. Methods were developed for separation and detection of simple cations ( $\text{Li}^+$ ,  $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{Zn}^{2+}$ ,  $\text{NH}_4^+$ ) and simple anions ( $\text{F}^-$ ,  $\text{Cl}^-$ ,  $\text{Br}^-$ ,  $\text{NO}_3^-$ ,  $\text{PO}_4^{3-}$ ,  $\text{SO}_4^{2-}$ ,  $\text{CO}_3^{2-}$ ) using a single capillary. Working standards were generally in the 1 to 25 mg/L range with minimum detection of 0.1 mg/L or better. Drinking water, bottled water, soft drinks, and common beverages were tested. Results compare favorably with known values.

### **THE JUNCTURE OF ART AND SCIENCE: ILLUSTRATING NEW SPECIES OF RAIN FOREST PLANTS**

*Yvette A. Evrard (Thomas G. Lammers), Department of Biology and Microbiology, University of Wisconsin-Oshkosh, 800 Algoma Boulevard, Oshkosh, WI 54901.*

Dr. Thomas Lammers, a taxonomist, is naming and describing 15 new species of plants from South American rain forests, based on pressed and dried specimens. Formal publication of new species requires accompanying illustrations, and I was hired to provide these. Working from the pressed and dried specimens, preliminary pencil sketches were created of each new species, showing each in a variety of angles and postures. Insets depicting the most significant or distinguishing features (e.g., floral details, tiny hairs) were then added. After consultation with Dr. Lammers to ensure botanical accuracy, these pencil sketches were inked. The illustrations have been submitted for publication in a peer-reviewed scientific journal with Dr. Lammers' article.

### **ATTITUDES TOWARD PERSONS WITH PHYSICAL DISABILITIES**

*Angela M. Folie (Betsy Morgan), Department of Psychology, University of Wisconsin-La Crosse, 1725 State Street, La Crosse, WI 54601.*

Past research has shown that non-disabled individuals hold negative attitudes toward persons with physical disabilities. One negative attribute associated with physically

disabled persons is that they are deserving of special aid and consideration. Gender has also been introduced as a factor influencing attitudes made to disabled persons. I predicted that non-disabled individuals' attitudes toward disabled persons would be more negative than attitudes towards non-disabled persons. I also expected that more socially desirable traits would be attributed to non-disabled individuals than to disabled persons, and that more undesirable traits will be attributed to disabled males than disabled females. Eighty participants from the general psychology human subjects pool at the UW-La Crosse read one of four scenarios depicting an interaction between a professor and a student inquiring about extra credit, where the gender and disabled status of the student were varied. Following this, they completed a questionnaire pertaining to the interaction and filled out a social desirability scale. ANOVA analyses that controlled for social desirability yielded few significant results. However, an interaction was found that indicated that disabled females were viewed as acting the "least appropriate" when asking for extra credit. This result may be indicative of respondents' likelihood to respond negatively to individuals who cross stereotypical boundaries. In this case, a disabled female is seen to cross both a gender and disability norm by acting assertive.

### **THE EFFECTS OF CINNAMON ON THE VASOREACTIVE RESPONSE TO INSULIN**

*Katie T. Freeman (Margaret A. Maher), Department of Biology, University of Wisconsin-La Crosse, 1725 State Street, La Crosse, WI 54601.*

Insulin is an important hormone that regulates blood glucose levels. In response to increased blood glucose, insulin is secreted by pancreatic islet b cells. Insulin release triggers numerous cellular responses after receptor binding. The insulin receptor is a tyrosine kinase that becomes phosphorylated and activated upon insulin binding. Normally, insulin action results in uptake, utilization, and storage of glucose and other energy yielding nutrients in target cells. The vascular system is also affected by insulin. It is believed that insulin acts as a vasodilator. Cinnamon, a natural spice, has been shown to have *in vitro* and *in vivo* physiological effects. It may prolong insulin action by preventing dephosphorylation of the insulin receptor. By prolonging insulin action, cinnamon may lead to increased insulin-induced vasodilation. Aortic rings from five rats were used to determine vasoreactive responses to insulin. Rings were analyzed suspended in muscle baths by force transducers. Phenylephrine (a vasoconstrictor) and acetylcholine (a vasodilator) responses were determined, followed by dose-response curves to each vasoactive agent, in the presence or absence of insulin. With aortic rings from 12 rats, the effect of cinnamon on the vasoreactive responses to insulin was determined in the presence or absence of cinnamon.

### **A MICROCONTROLLER DRIVEN HIGH TEMPERATURE THERMOMETER**

*Jesse A. Gavin (Ronald L. Wilson), Physics Department, University of Wisconsin-River Falls, 410 S. Third Street, River Falls, WI 54022.*

There are many applications that require an accurate measurement of temperatures in the range of 1000°F to 2500°F. These include but are not limited to industrial chemical processes, heat engine exhaust, glass blowing, artisan metal working, pottery firing, black-smithing, etc. To overcome the limitations of commercially available units and measuring techniques, a new thermometer was designed and built. The resulting design

makes extensive use of imbedded control and is based on the established technology of the type K thermocouple. The control program imbedded in the micro-controller directs and integrates all aspects of the operation of this instrument. The micro-controller measures the emf produced by the thermocouple then, using two splined cubic equations derived by analyzing empirical data, it translates the emf into a binary coded temperature. The temperature information is converted into a seven segment code which is outputted to a liquid crystal display. The ice bath commonly associated with thermocouple measurements has been replaced by an electronic circuit. The result is a portable thermometer capable of measurements over the range 1000°F to 2500°F (~540°C to 1370°C) with a calculated accuracy of better than ±5%. The design was calibrated at nominal temperatures up to 212 °F and field-tested. During the field tests an anomalous effect resulted when the common flux borax ( $\text{Na}_2\text{B}_4\text{O}_7 \cdot n\text{H}_2\text{O}$ ) was introduced into the immediate environment of the thermocouple.

### **SEX DISCRIMINATION WHILE HIRING**

*Amber L. Gerber, Kylee J. Krause (Dr. James Byrd), Department of Psychology, University of Wisconsin-Stout, P.O. Box 790, Menomonie, WI 54751-0790.*

This study was executed to see if students at the UW-Stout hold sexist attitudes in regard to employment. Seventy six men and 76 women undergraduate students read one of four resumes and were asked to rate the prospective job applicant. Sex of the applicant, sex of the reader, and whether or not personal information was included were varied in a 2x2x2 factorial between subjects design. A three-way ANOVA was used to analyze responses to the questionnaire. When asked to rate work skills and qualities, there was significance between sex of participant and if personal information was included. When asked to rate the objective, there was significance between sex of the participant and if personal information was included. When asked to rate physical ability, there was significance between sex of the participant and if personal information was included. Physical ability rated significantly higher when personal information was included. When asked to recommend starting salary, there was significance between starting salary, and sex of the participant. Starting salary was rated significantly higher when personal information was included. When asked if they would hire the applicant, there was significance between sex of applicant and sex of participant.

### **EXPERIENCE VS. INEXPERIENCE: THE EFFECT ON TEACHER PERCEPTION OF MALE AND FEMALE STUDENT BEHAVIOR**

*Trisha M. Groeschl, Jaimeson L. Wetenkamp (Dr. Betsy Morgan), Psychology Department, University of Wisconsin-La Crosse, 1725 State Street, La Crosse, WI 54601.*

Through teachers' presentation of activities and materials they provide influential messages pertaining to gender roles. This study focuses on the stereotypical gender views that teachers have toward students' behavior. 50 female teachers from Northeastern WI participated in this study and represent the experienced teachers. Additionally 30 upper level education majors from the University of Wisconsin-La Crosse were used as the inexperienced teachers. Both groups rated student's behaviors in four scenarios on measures of acceptability, disruptiveness, etc. Male scenarios were rated as more acceptable than female scenarios. Also experienced teachers rated scenarios as less severe as compared to inexperienced teachers.

### **EFFECTS OF METHYLAMINE IN ISOLATED HUMAN BLOOD VESSELS**

*Kristofer M. Hall, Gina C. Liebsch (Daniel J. Conklin), Biology Department, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

Methylamine (MA), a primary amine, is hypothesized to be an endogenous substrate for the vascular-rich enzyme, semicarbazide-sensitive amine oxidase (SSAO). MA is broken down by SSAO into formaldehyde, hydrogen peroxide, and ammonia. Because all three MA metabolites are toxicants and because SSAO activity is relatively concentrated in blood vessels, it is hypothesized that MA is a vascular toxicant. We tested this hypothesis by exposing isolated human blood vessels (internal mammary artery, IMA; radial artery, RA; and saphenous vein, SV), collected from consenting patients undergoing coronary artery bypass grafts, to MA (1-1,000  $\mu$ M). MA (1 mM) produced two dramatic effects: 1) MA reduced subsequent norepinephrine-induced contractions (NE; 10  $\mu$ M), and 2) MA relaxed NE-precontracted blood vessels. The MA relaxation was most dramatic in the IMA (~40% reduction in NE-induced tension). We tested whether the MA relaxation in IMA was dependent on SSAO activity by IMA pretreatment with semicarbazide (1 mM, 10 min), the inhibitor for which SSAO was named. Semicarbazide significantly inhibited the MA-induced relaxation. We conclude that MA is a substrate for human blood vessel SSAO and that a MA metabolite(s) significantly reduces blood vessel contractility, although the mechanism is unknown.

### **SELF-PERCEIVED ATTRACTIVENESS AND SOCIAL COMPETENCY AMONG COLLEGE STUDENTS**

*Lisa A. Harrison (Dr. James Byrd), Department of Psychology, University of Wisconsin-Stout, P.O. Box 790, Menomonie, WI 54751-0790.*

Social competency is an extremely important skill in current society. This study was designed to determine if a link exists between social competency and self-perceptions of attractiveness. Participants included 33 college students, age 18 to 25, who were asked to participate in a research study. Due to time and resource restrictions, a cluster sampling procedure was utilized, choosing participants based upon dorm residence and willingness to complete a survey. Data was collected using a short questionnaire. This instrument consisted of four demographic questions, ten Likert type questions assessing social competency, and one ten point scale assessing self-perceived attractiveness. The social competency scale included questions such as comfort level in social interactions, ability to express one's opinion, communication in group settings, and public speaking abilities. The data supports the hypothesis that there is a positive correlation between self-perceptions of attractiveness and social competency, with  $r=.478$  and  $p=.005$ . Further, there was no statistically significant relationship between social competency and age, gender, or education level. More investigation is necessary to determine if the link here is a casual one, but this research strongly supports the notion that among this sample, a relationship between social competency and self-perceived attractiveness exists.

### **ATTITUDES TOWARD AFFECTION AND PHYSICAL PLEASURE IN RELATION TO PERCEPTIONS OF VIOLENCE**

*Diane J. Hassler (Dr. James Byrd), Department of Psychology, University of Wisconsin-Stout, P.O. Box 790, Menomonie, WI 54751-0790.*

Violence in general has been on the decline, but violence among youth is on the rise

(Ellickson, 2000). Many factors contribute to the causes of violence. What motivates or inhibits someone from being violent may be tied to specific attitudes and perceptions. Attitudes toward affection and sex may influence people's perceptions of violence. Fifty seven male college students at the University of Wisconsin-Stout participated in an experiment. They received two questionnaires, one on attitudes toward affection and another on attitudes toward sex. Then they watched a violent movie clip, typical of basic television. Last, they completed a questionnaire that rated the violence level of the clip. Participants who scored high on the affection scale rated the movie clip as more violent than those who scored low. Correlations were found between attitudes toward affection and sex as well. The less affectionate they scored, the more open to promiscuity and casual sex they were. A correlation between how violent participants rated the film and their attitudes toward sex was reflective of lower sexual inhibitions. Findings suggest that developing affectionate attitudes and meaningful ideas about sexual relations can influence the perception of violence and may in turn effect motivations and restraints in violent behavior.

**EVALUATION OF TOPOISOMERASE I AND NQO1 GENE EXPRESSION IN PATIENTS RECEIVING MITOMYCIN-C AND IRINOTECAN**

*Lisa A. Hillman (Jill M. Kolesar), School of Pharmacy, University of Wisconsin-Madison, 500 Lincoln Drive, Madison, WI 53706.*

NQO1 (NAD(P)H:Quinone oxidoreductase) and topoisomerase I (topo I) gene expression were evaluated in peripheral blood lymphocytes of patients receiving MMC and irinotecan. Since both MMC and irinotecan can alter the activity of NQO1 and topo I, thereby changing the chemosensitivity to either agent, evaluation of these molecular correlates may be important in determining optimal sequencing. Gene expression was quantitated by RT-PCR.

	NQO1 Gene Expression (ng/mcl x 10 <sup>-13</sup> )	Topo I Gene Expression (ng/mcl x 10 <sup>-15</sup> )
Day 1		
Predose	2.89	0.096
Beginning of infusion (BOI) MMC	0.696	0.002
End of infusion (EOI) MMC	1.56	1.91
EOI + 3hr	11.7	0.0046
EOI + 24hr	11.2	0.102
Day 2		
EOI (Irinotecan)	1.18	0
EOI + 2	1.07	0.0575
EOI + 24	2.61	0.0771

In summary, inhibition of NQO1 appears to be a nonspecific effect of MMC and irinotecan, while induction appears specific to MMC. Topo I gene expression was induced 20 fold during the MMC infusion, but returned to baseline prior to irinotecan infusion and was not influenced by irinotecan infusion. Therefore, maximal activation of MMC by NQO1 may occur 3 hours after MMC infusion and maximal irinotecan activation may occur immediately after a MMC infusion when topo I expression is maximal.

### **PATTERNS OF DAILY ACTIVITIES AND COMMUNICATION AS TOLD BY PALM PILOTS**

*Angela L. Hintz (Kathryn Dindia), Department of Communication, University of Wisconsin-Milwaukee, 2310 E. Hartford Avenue, Milwaukee, WI 53211.*

Research indicates that people spend approximately 80 percent of their waking hours communicating; communication is clearly an essential component of human existence. However, it is difficult to track the different roles communication plays because not everyone communicates for the same reasons. Some people, for example, communicate in order to inform or instruct. Still, there are other reasons for communication; this creates a challenge for researchers. Why do people communicate? With whom do individuals communicate and for how long? What is the mode of communication? How do the moods of those interacting affect the quality of communication? The answers to these questions are of primary importance to those interested in discovering the effects that patterns of daily activity have on communication. One method of eliciting this information involves the use of hand held computers. In this study, men and women carry the small computer with them for one full week. During the week, the computer beeps at random times. The beeps signal the participants to answer a series of questions on the computer. The electronic questionnaire asks the participants about their mood, location, and activity. The answers to the questionnaires are used to understand the relationship between daily activity and communication.

### **A SATELLITE-DERIVED ANALYSIS OF LAND COVER CHANGES FOR AMAZONIAN RAINFOREST, PARA, BRAZIL**

*Jonathan Hoekenga (Cynthia J. Berlin), Department of Geography and Earth Science, University of Wisconsin-La Crosse, 1725 State St., La Crosse, WI 54601.*

Satellite technology has allowed for the evaluation of changes in the Amazonian Rainforest that might otherwise be difficult to assess. This study focuses on an area of the Amazon basin in the state of Para, Brazil. The area included approximately 250,000 acres of primary (never been cut) rainforest in 1984; by 1994, however, this area had undergone considerable environmental disruption due to logging, ranching and farming. Two Landsat satellite images, from 1984 and 1994, were analyzed to evaluate the change in forest area. In 1994 there were thousands of forest fires burning throughout the entire Amazon, creating severe atmospheric haze interference on the 1994 image. Thus a haze-reduction algorithm was applied to this image prior to performing the surface cover analysis. A classification was then made for both images, producing maps that show major land cover types. Statistical comparisons were made to evaluate changes from 1984 to 1994. Results indicate that approximately 32,000 acres of primary forest in the study area were logged or burned. However, about 8,000 acres of previously cleared land

regenerated into secondary forest during this time period. These results suggest that a small portion of the deforestation is being mitigated by reforestation.

### **EXPRESSION OF HEAT SHOCK PROTEINS IN MURINE LUNG**

*Frank J. Horvath, Jr., Emmie Kirchner (Dr. E. Katherine Miller), Department of Biology, University of Wisconsin-River Falls, 410 S. Third Street, River Falls, WI 54022.*

The 70 kD family of Heat shock proteins (HSP70s) are a group of highly conserved proteins. Some other members are constitutively produced, while other members are induced following a physiologically relevant hyperthermia (heat shock). The long term goals of this project are: 1) to determine the relative levels of heat shock protein 70 (hsp70, heat shock cognate 70 (hsc70), and glucose regulated protein 78 (grp78) mRNAs in heat stressed murine lung and 2) to determine the cell specific expression of these mRNAs. C57/Blk6 mice (males) were made hyperthermic by increasing their body temperature to 42EC at the rate of 0.1EC/minute, held at this temperature for 10 minutes and allowed to recover to 37EC. The animals were sacrificed and areas of their respiratory system were processed for histology and for RNA isolation. The body temperature versus time profiles were used to calculate the total thermal response (TTR) for heat shock and control animals. The TTRs demonstrated that the heat shocked mice reached a physiologically relevant hyperthermia and that control mice did not. Histology (H&E staining) of heat shocked and studies demonstrated that there were no morphological differences between the two groups. Total RNA isolates from both groups were obtained and will be used for northern blot analysis. Tissues have also been prepared for *in situ* hybridization.

### **INFLUENCES ON THE HYDROLOGY OF THE POINT AU SABLE COASTAL WETLAND OF GREEN BAY**

*S.E. Humpal, University of Wisconsin-Green Bay, 2420 Nicolet Drive, Green Bay, WI 54311-7001.*

Point au Sable is a prominent coastal feature that is located in the southern section of Green Bay. Nearly 200 species of birds visit the point each year. Water levels in a large lagoon at Point au Sable influence the distribution of aquatic plants and animals. These water levels are affected by large rises in Green Bay water levels and by the seiche in the bay. During the study period the lagoon began to flood when the bay level was between 176.3 and 176.5 meters above IGLD 1985. These bay water elevations were closely correlated with strong seiche events. Each significant rise in lagoon water level was followed by a period of near equal recession rates. When the water depth dropped below 11 cm, recession rates increased. Recession rates ranged from .59 to 1.17 m/day when the level was above 11 cm and 1.75 to 2.63 cm/day when the level fell below 11 cm. Study period was June to November 2000. Lagoon data was gathered using water level recorders, bay data was acquired from the NOAA Center for Operational Oceanographic Products and Services, and wind data was downloaded from the NOAA National Data Buoy Center web site.

### **GRANULAR SEGREGATION STUDIES USING MRI**

*Dwight Hunter (Mentor's Name Dr. Kimberly Hill-Malvick) Department of Physics, University of Wisconsin-Whitewater, 800 W. Main Street, Whitewater, WI 53190.*

A fascinating puzzle in pattern formation that also presents problems for certain industrial processes is the tendency of granular materials or powders to segregate whenever there is any difference in particle property such as shape, size, or density. One example of this is granular segregation in a rotating circular two-dimensional (2d) drum mixer. At first, the particles tend to segregate radially along the axis of rotation, after which the particles will segregate into bands along the axis of rotation. Some models for axial segregation indicate that radial segregation is a necessary pre-requisite for axial segregation. However, recent studies in 2-D mixers that isolate the radial segregation have shown that traditional radial segregation is altered in *non-circular* cylinders. Our recent study using three-dimensional square mixer, and Nuclear Magnetic Resonance Imaging (MRI) to view beneath the surface layers showed evidence of non-traditional radial segregation co-existing with axial segregation, calling into question certain details of the model for axial segregation.

### **FOS ACTIVITY IN THE HAMSTER BRAIN DURING EXERCISE-INDUCED CIRCADIAN CLOCK RESETTING**

*Matthew J. Irwin (Daniel Janik), Department of Biology, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

Circadian rhythms control daily cyclic body functions. In mammals, the brain's suprachiasmatic nucleus (SCN) is the site of the master circadian clock, which can be reset by light (photic) or by exercise (nonphotic) stimulation. In male hamsters, we can easily observe the daily rhythm of wheel running controlled by the clock. We have found that we can reset hamsters' clock by as much as 3 hours by allowing them to run during the time they normally sleep. Exercise must occur for about 3 hours to effectively reset a hamster's cycle. It is known that a part of the brain called the intergeniculate leaflet (IGL) is activated after 3 hours of exercise and is involved in a chain of activation events between exercise and resetting of the clock in the SCN. We are measuring a marker of metabolic activity, Fos, to determine which areas of the brain are active during the 3-hour resetting window. We are surveying inputs to the IGL and various brain regions for Fos activity to define a route for nonphotic input that terminates at the IGL and SCN.

### **DETERMINATION OF THE POLE POSITION OF ASTEROIDS**

*Theodore R. Jaeger, Paul R. Martin (Lyle Ford, George Stecher), Department of Physics and Astronomy, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

Light curves of two asteroids (39 Laetitia and 367 Amicitia) were measured using the 0.6 m reflecting telescope at Hobbs Observatory near Fall Creek, Wisconsin. Using these light curves, together with others' previously published light curves, the orientations of the rotation axes (pole positions) of the asteroids were estimated using Wild's epoch method. In this presentation, we compare our results to the results obtained by others for 39 Laetitia. In addition, we present our results for 367 Amicitia, for which a pole position has not been previously determined.

### **CONTROL OF PHOTOSYNTHESIS IN *CHLAMYDOMONAS REINHARDTII***

*Nathaniel T. Jeanson (David C. Higgs), Department of Biological Sciences, University of Wisconsin-Parkside, 900 Wood Road, Kenosha, WI 53141.*

Plants harness the sun's energy to generate essential sugars via photosynthesis, which occurs in the chloroplasts. Chloroplasts contain their own genes, and proper control of the expression of these genes is imperative for photosynthesis. Two well-studied genes in *Chlamydomonas reinhardtii* are *petD* and *psbC*. Research has revealed a number of regulatory sequences (elements) in the mRNAs from each of these genes, and these elements control gene expression by stabilizing their respective mRNAs and initiating translation of the encoded proteins by interacting with gene-specific *trans*-acting factors. It has been hypothesized (but untested) that these different regulatory elements function through a common pathway by interacting with general intermediary factors. By constructing a chimeric reporter gene with elements from both *petD* and *psbC* fused to the coding region from the GUS reporter gene, we will assess whether these regulatory elements function together as measured by the synthesis of GUS protein. Expression of GUS would suggest that these elements promote expression through a common pathway. If not, we will conclude that the elements function only in the mRNA of origin. Construction of the reporter genes is in progress. These results would increase our understanding of the complex genetic regulatory mechanisms that control photosynthesis.

#### **LARVAL *GLOSSOSOMA INTERMEDIUM* (TRICHOPTERA: GLOSSOSOMATIDAE)**

*Shane N. Jones (Dr. Roger J. Haro), Biology Department, University of Wisconsin-La Crosse, 1725 State Street, La Crosse, WI 54601.*

*Glossosoma intermedium* are efficient grazers of periphyton and are often found in high densities (10,000 individuals/m<sup>2</sup>). These insects are keystone herbivores, locally regulating periphyton biomass. The combination of high densities and grazing efficiency limits available periphyton for grazing macroinvertebrates, including *G. intermedium*. We observed in the field and in preliminary laboratory studies that larvae mount the cases of conspecifics. We hypothesized that the frequency of this behavior varies inversely with the level of periphyton available on stream substrates. This hypothesis was tested by a series of laboratory experiments. Larvae were collected from a local stream and placed in artificial flumes containing unglazed quarry tiles that were either colonized with periphyton or bare (uncolonized). We observed mounting behavior with time-lapse video photography. Larvae encountered conspecifics at the same rate on colonized and uncolonized tiles. However, on colonized tiles, larval encounters resulted in mountings approximately 50% of the time and increased to 79% on uncolonized tiles. Larvae remained mounted longer on conspecifics on uncolonized tiles than on colonized tiles. We suggest that *G. intermedium* may supplement resource consumption by mounting conspecifics to graze periphyton off their cases when periphyton levels on stream substrates become depleted.

#### **THE CORRELATION OF POLITICAL SIGNS AND VOTES IN THE NOVEMBER 2000 ELECTION**

*Rudolph P. Kluz III, Sarah C. Mindel, Cody D. Thiede, Douglas Cabak (Sean Hartnett, Ingolf Vogler), Department of Geography, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI. 54701-4004.*

The ability to map the political signs for the Presidential, Senate, United States Representative, and the State Assembly was made possible by using the Differential

Global Positioning System (DGPS), the Trimble Pro XR receivers, that mapped the location of each lawn sign with sub-meter precision. This system gives latitude and longitude coordinates to points, lines, and regions by using a series of satellites dispersed in a spatial orbit. Four students completed the survey positioning the DGPS over each political sign recorded. DGPS data was imported into ArcView GIS where the sign of each candidate was mapped. The purpose of this project is to show the correlation between the political signs and votes by political ward, and to see how these wards might vote based on these signs. The prediction made before starting the project was that the signs would give a positive correlation to the vote count. In other words, whoever would get the most votes should indeed have the most signs.

### **FOOD PREFERENCE AND CONSUMPTION DURING INDUCED MOOD SITUATIONS**

*Casey A. Koeppl, Aimee H. Williams (Kathleen R. Stetter), Department of Psychology, University of Wisconsin-Oshkosh, 800 Algoma Boulevard, Oshkosh, WI 54901.*

This study examined food preference and consumption simultaneously in students with untroubled eating patterns. The difference in food consumption and preference during a positive, neutral, and negative video for mood induction was measured. Food preferences investigated were sweet (caramel corn) and salty (popcorn). A total of 45 participants were evaluated, 15 per mood condition. Students completed a pre- and post-test mood examination and were not told that their food consumption was being measured until debriefing. The experimental design was a 3 x 2 x 2 (Induced Mood x Hunger x Pre/Post test) for mood rating and a second 3 x 2 x 2 (Induced Mood x Hunger x Food Type) for consumption. Findings were significant for the test and mood interaction; pre- and post-mood scores differed for the positive and negative mood groups and remained relatively constant for the neutral mood group. Test and hunger had a significant interaction, participants in the hungry group were significantly happier after eating. Food type (caramel or regular popcorn) also showed significance with caramel corn preferred twice as much as regular popcorn. These findings could be applied to treatment of eating disorders and evaluation of pre-cursors for hunger.

### **STRUCTURE OF NANOMETER TOPOGRAPHY DEVELOPED ON THE SURFACE OF AG/CU ALLOYS DUE TO ARGON ION BOMBARDMENT USING X-RAY ENERGY DISPERSIVE SPECTROSCOPY AND TRANSMISSION ELECTRON MICROSCOPY**

*Jack T. Kollwitz (Kim W. Pierson), Department of Physics and Astronomy, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

In the field of Materials Science the development of novel materials requires analysis of the composition of the sample as a function of depth into its surface. These “depth profiling” experiments consist of slowly eroding away the sample surface via ion bombardment. Diagnostic techniques are used to assay the elemental composition at each depth. Recently, while performing ion bombardment experiments on copper-silver alloys, we discovered the presence of nanometer sized “finger-like” structures on the surface of the samples. These structures would greatly complicate the interpretation of depth profiles performed on these types of alloys. They are a problem because they are so small that they can not be resolved with common surface imaging techniques. We are using a

specialized technique called transmission electron microscopy (TEM) which allows much greater magnification than usual surface imaging techniques. We are also using x-ray energy dispersive spectroscopy to determine the composition of the structures.

### **OVERCOMING BARRIERS TO EXERCISE USING COST AND TIME EFFECTIVE INTERVENTIONS**

*Sarah A. La Croix, Regan A. R. Gurung, Brandon B. Hayes (Regan A. R. Gurung), Department of Psychology, University of Wisconsin-Green Bay, 2420 Nicolet Drive, Green Bay, WI 54311-7001.*

Non-clinical college students and staff members from a moderate sized Midwestern university interested in developing a healthy lifestyle were required to complete one questionnaire at the beginning of the semester and the other at the end of the semester. Specifically, we measured perceived severity of consequences, the extent to which participants worried about the outcomes of being overweight and unfit, perceived effectiveness of behavior change and costs and benefits (Health Belief Model); subjective norms and motivation to adhere to norms, self-efficacy (theory of planned behavior); and stage of change (Transtheoretical Model). We also included a 14 item Barriers to exercise scale based on previous work with the Health Beliefs Model. Barriers were hypothesized as the major problem that stood in the way of people getting to exercise. The intervention involved having participants come up with two or more specific ways to overcome their top three barriers. Our results show that a simple cost and time effective intervention can significantly help overcome barriers to exercise and will increase exercise. The most common of these barriers include time, being tired, mood, too much work and prior engagements. Additionally, popular predictors of health behaviors (i.e., perceived vulnerability, susceptibility, and perceptions of norms) may not hold for all populations. The major barrier for our sample of non-obese, non-clinical individuals was the barriers they perceived and not any of the usual suspects.

### **THE ELDERS REMEMBER: A GPS STUDY OF STOCKBRIDGE-MUNSEE HISTORICAL LAND USE**

*Josh Lahner, Tim Kinney, Corinne Orzech (James Oberly-Department of History), Department of Geography, University of Wisconsin-Eau Claire, 105 Garfield Ave, Eau Claire, WI 54702-4004.*

In July 2000, a group of UWEC geographers and historians, along with Stockbridge-Munsee tribe elders visited land areas in Shawano County that the Stockbridge-Munsee tribe has used for survival from 1900-1930. These important sites were recorded in order to reveal what lands the tribe has used in the past. The data was collected and entered into a Trimble Pro XR Global Positioning System(GPS) device. Pathfinder and ArcView software were used to organize and present the GPS data. These images were then overlaid on top of a topographical map of the study area. Adobe Illustrator software was then used to enhance the image on the map and to express clearly where the Stockbridge-Munsees made use of lands. The resulting map displays that the Stockbridge-Munsee tribe have used resources continuously despite losing ownership of land parcels on their reservation.

## **WOMEN AT THE BOAT LANDINGS: THE EXPERIENCE OF CHIPPEWA INDIAN WOMEN IN SUPPORT OF TREATY RIGHTS, 1987-1991**

*Laura Lambert (James Oberly), Department of History, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

This spring marks the tenth anniversary of the legal settlement between the State of Wisconsin and the Lake Superior Bands of Chippewa Indians that guarantees the tribes the right to fish, hunt, and gather off-reservation without state interference. The springtime spear fishing by tribal members was marked by sometimes violent protests by anti-treaty groups. Ten years later, the time is right for a historical appraisal of the treaty rights controversy. Laura Lambert is part of a faculty-student collaborative research team at UWEC working on this historical topic, led by Dr. Ronald Satz, and by Dr. James Oberly. Ms. Lambert will be interviewing women tribal members about how they experienced the controversy over spear fishing. She will focus on women of the Lac du Flambeau Band of Lake Superior Chippewa Indians. Laura will present a poster of her research findings, if invited to participate in the UW System Undergraduate Research and Creative Activity Symposium.

## **ATTITUDES OF TOLERANCE: DO WE STAND UNITED OR DIVIDED ON THE QUESTION OF HOMOSEXUALITY?**

*Gale Lloyd-Horton, Lisa Lipari (Patrick A. Goldsmith), Sociology/Anthropology Department, University of Wisconsin-Parkside, 900 Wood Road, Kenosha, WI 53141.*

Alan Wolfe's (*One Nation, After All*. 1998. New York: Penguin) recent research is the only information documenting a deep division of tolerance towards gays and lesbians. Americans disagree about the freedom to choose sexual partners, the extension of civil rights to gays and lesbians, and public support for the gay and lesbian community. Although overall levels of tolerance have increased, researchers have not replicated Wolfe's findings with other samples. We hypothesize a division still exists. We also explore who tends to be tolerant. We analyze survey research (n=350) using histograms and multivariate regression to answer these question. We found that people are still divided, with a few people being extremely intolerant, many very tolerant, and most people without a strong bias. People who tend to be intolerant are middle aged or older, male, Christian, who do not have gay or lesbian acquaintances, and especially, people believe that homosexuality is not a choice.

## **CONTROLLING THE DIRECTION OF RANDOM MOTION IN A MAGNETIC PENDULUM**

*Arriety Lowell, Dwight R. Luhman (Dr. Lowell McCann), Department of Physics, University of Wisconsin-River Falls, 410 S. Third Street, River Falls, WI 54022.*

Recently, methods have been proposed on how to control the otherwise random motion of thermally activated objects in a series of potential wells. We have constructed a simple system to investigate these predictions for a two-state magnetic pendulum. The experiment consists of a magnetic pendulum bob suspended above a pair of electromagnets to form two stable equilibrium states. By introducing mechanical 'noise' into the system, the pendulum simulates the random motion of thermally activated particles. In a fully balanced system, the 'noise' will cause the pendulum to jump randomly from one well to the other. A second pair of electromagnets, is used to

effectively tilt the wells from side to side. We are investigating an asymmetric zero-average periodic tilt, which should isolate the pendulum in one side of the double well, depending upon the shape of the asymmetry. This will demonstrate control over the direction of the pendulum's motion using a zero-average signal.

### **THE EFFECTS OF SLANTED FLOORS ON GRANULAR FLOWS IN TWO DIMENSIONAL SILOS**

*Dwight R. Luhman (Dr. Lowell McCann), Department of Physics, University of Wisconsin-River Falls, 410 S. Third Street, River Falls, WI 54022.*

Granular materials are important in a wide range of industries including pharmaceuticals, agriculture, and material handling. Despite the ubiquitous use of these materials, their properties are not well understood. This project focused on the material's flow characteristics. If a granular material is allowed to flow out of a centrally located orifice in the bottom of the container, not all of the material will be in motion. Only an essentially parabolic region centered at the orifice and extending up to the sides of the bin will flow. As more material leaves the container, the parabolic flow pattern moves down and the previously static regions begin flowing. Eventually the flow will stop, leaving some material in the container, symmetric about the orifice and sloping up to the sides. The purpose of this research is to investigate and determine the dependence of the effects of slanted floors on the flow pattern of the material.

### **APPROACHES TO MOLD-MAKING AND CASTING**

*Kristine MacCallum (Professor Michael E. Christopherson), Art Department, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

Artists explored various methodologies and technologies available to sculptors for the purpose of mold-making and casting. The project intent was to uncover art-making options which enable the creation of multiples and more complex imagery in sculpture. To accomplish this, traditional approaches to mold-making were employed in new ways, and new developments to mold-making and casting were examined, including use of urethane compounds for mold-making and plastic resins for casting. Also, experimentation pursued various uses of such casting materials as concrete, wax, plaster, glass, paper, and perishable materials such as ice and chocolate, each of these in non-traditional combinations. To gain an information base, a literature search was conducted to research techniques, materials, and issues pertaining to contemporary mold-making and casting. Experts in the academic, industrial, and art arenas were interviewed to learn more about state-of-the-art and experimental methods in use. Dissemination of information gained from these investigations was shared with other sculpture students through demonstrations and one-to-one mentoring. Also, a procedural manual was developed to include step-by-step instructions, safety considerations, troubleshooting recommendations, examples of mold-making in sculpture, and a bibliography. This manual is intended as a special guide for artists and provides instructions beyond the manufacturers' guidelines.

### **PRELIMINARY ANALYSIS OF THE EFFECTS OF PARENTAL INPUT ON CHILDREN'S FOLKBIOLOGY**

*Erin A. Maegdlin (Regan A. R. Gurung), Department of Psychology and Human*

*Development, University of Wisconsin-Green Bay, 2420 Nicolet Drive, Green Bay, WI 54311-7001*

Do different cultures interact with the environment differently as seen in the way people categorize plants and animals? The present study is a preliminary investigation of the effect of parental input on children's categorization of aspects of the living world. Two experimenters provided 15 caregiver-child dyads with a picture book containing 12 scenes of native and exotic plants and animals. Verbal interactions were analyzed to ascertain what information adults give children about plants and animals. The sample was composed of 2 groups, 7 Majority culture dyads and 8 Menominee culture dyads, which live in close proximity to each other. Transcripts of recordings were coded using 6 different categories. Utterances could be classified to 1 or more of the following categories: taxonomic, behavioral, physical characteristic, place, personal experience or unrelated. The type of information communicated did not significantly differ (p.05) between groups. Results show that similar information was conveyed in both cultures.

### **MARYLAND PLAN: IMPROVING THE PHYSICAL ENVIRONMENT OF THE UWM NEIGHBORHOOD**

*Adam L. Maier (Prof. Bob Greenstreet), School of Architecture & Urban Planning, University of Wisconsin-Milwaukee, 2310 E. Hartford Avenue, Milwaukee, WI 53211.* In order to address the problems of physical decline of the UWM neighborhood, the Campus Design Solutions Unit at the School of Architecture-UWM, initiated a design project. This was done in 5 phases: Phase I: Observations by students under the guidance of CDS Unit to get familiar with the problems of the area. Phase II: Inventory of the Properties and the Streetscape of the area. Phase III: Questionnaire Survey of residents and UWM students. Phase IV: Literature Review/Precedents Study. Phase V: Derive Solutions based on the Questionnaire Findings. The solutions included the improvement of the streetscape to have a very residential character, regular maintenance of the properties, and improving the lighting and parking around the neighborhood.

### **REVITALIZATION OF THE "UNIVERSITY SQUARE" NORTH OAKLAND AVENUE (BID #13), MILWAUKEE**

*Adam L. Maier (Prof. Bob Greenstreet), School of Architecture & Urban Planning, University of Wisconsin-Milwaukee, 2310 E. Hartford Avenue Milwaukee, WI 53211.* The North Oakland Avenue "University Square" commercial district, located in eastside Milwaukee, spans across two block between East Linwood Ave and East Newberry Blvd. Its business improvement program included improvement of the streetscape and the facades of the properties. The comparable commercial districts; analysis of the problems in the area; and, design recommendations. The residents in the area, UWM students, and business and property owners of the commercial strip participated in the survey discussing the preferred activities and aesthetic measures for the streetscape. An observation study of comparable revitalized commercial districts included North Oakland Avenue-Shorewood, State Street-Madison, and Oak Park-Chicago. Findings of the survey and the observation studies facilitated the formulation of design solutions. Design guidelines for façade improvements included recommendations for gable designs, building heights, window sizes, ornamentation, awning, and signage. Streetscape

improvement proposals included recommendations for landscaping, street furniture, lighting, banners, paving, fences, parking, and a new small plaza.

### **DEGRADATION OF HABITAT IN WARMWATER STREAMS OF CHIPPEWA COUNTY, WISCONSIN**

*Ron Malecki, Department of Biology, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

Of the many thousands of miles of small streams in Wisconsin, the majority are classified as warm water. Despite this fact, most stream research and management in this state has focused on the improvement of coldwater trout streams. In this study, we will continue a survey, initiated in spring 2000, to assess the quantity and quality of habitat in several warm water streams of Chippewa County, Wisconsin. Habitat evaluations are being completed using the criteria established by the Wisconsin Department of Natural Resources. These results will then be related to land-use patterns for the different watersheds, as viewed from aerial photographs. The findings of the survey will be combined with the results of ongoing studies of warm water stream quality and riparian zone usage in Northwest and Central Wisconsin.

### **POLYETHYLENE GLYCOL IMPROVES ELECTROPORATION EFFICIENCY FOR E. COLI**

*Anna Malovannaya (Warren Johnson), Department of Human Biology, University of Wisconsin-Green Bay, 2420 Nicolet Drive, Green Bay, WI 54311-7001.*

Electroporation of *E. coli* DH5a and *E. coli* DH10B was carried out in the presence of varying amounts of polyethylene glycol (PEG, av. Mol. Wt. 400). Both strains were transformed using pBR322. The efficiency of transformation was determined by growing electroporated bacteria on LB agar media containing ampicillin. PEG treatment improved electroporation efficiency 2 to 5-fold (measured in transformants/ g plasmid). The greatest improvement was observed in cells that were less efficient for transformation ( $0.8 \times 10^7$  transformants/ g pBR322 without PEG). Cells more efficient for transformation ( $5.0 \times 10^7$  transformants/ g pBR322 without PEG) showed less increase in the efficiency of transformants due to PEG treatment, »1.5-fold. The optimum of PEG concentration in the electroporated mixture was determined to be »3.4%(V/V). A minimum of 15 minutes between addition of PEG and electroporation appears to be needed for improvement in efficiency.

### **IMPROVING ACADEMIC MOTIVATION BY THE INTERGRATION OF SEVERAL THEORETICAL PERSPECTIVES**

*Paul Marinin, Angela L. Hahn (Kathleen R. Stetter), Department of Psychology, University of Wisconsin-Oshkosh, 800 Algoma Boulevard, Oshkosh WI 54901.*

This study examined the contributions of major theories and perspectives of attitude development in both the cognitive and social psychology areas. The experiment was designed to create the environment that is generally conducive to positive attitude construction. A sample of 33 individuals were randomly assigned to either an experimental condition that involved a self-affirmation task to establish an attitude of high academic motivation, or a non-affirmation task group. The experimental (affirmation) group was compared to the control (non-affirmation) group by use of an

established academic motivation assessment survey. The mean scores on the academic motivation survey for the affirmation group ( $M = 54.52$ ,  $SE = 2.18$ ) were significantly higher than the non-affirmation participants ( $M = 47.97$ ,  $SE = 2.17$ ). Results of a 2 x 2 (Affirmation x Gender) analysis of variance were significant,  $F(1,29) = 4.50$ ,  $p = .042$ , and the affirmation effect was consistent for both males and females. In addition to support to the theoretical perspectives of attitude development, such positive academic affirmations may provide a practical template for improving attitudes and thus individual behaviors.

### **ASSESSMENT OF THE PHYSIOLOGICAL ROLE OF PFP I PROTEASE IN *RHODOBACTER SPHAEROIDES***

*Melissa A. Meland (Robert D. Barber), Department of Biological Sciences, University of Wisconsin-Parkside, 900 Wood Road, Kenosha, WI 53141.*

Proteinase I, encoded by *pfpI*, is an intracellular protease found in a spectrum of organisms ranging from prokaryotes to eukaryotes. Analysis of numerous genomic sequences using the BLAST algorithm has revealed the presence of *pfpI* in over forty organisms. The crystal structure of PfpI isolated from a hyperthermophilic archaeal species suggests that a conserved cysteine residue acts as a nucleophile in the catalytic mechanism of this protease. However, the physiological role of this enzyme in these various organisms remains unclear. As a result, a *pfpI* null allele will be constructed in the facultative photosynthetic organism *Rhodobacter sphaeroides* to assess potential cellular functions of this protease. The *pfpI* gene appears to be in an operon involved in sulfolipid biosynthesis, and elevated levels of sulfolipids under photosynthetic growth conditions suggest a potential role for PfpI in photosynthetic growth. The null allele will be constructed by integrating an antibiotic resistance into *pfpI* by transposon mutagenesis *in vitro*. Subsequent transfer and selection for introduction of this allele into a wild type *R. sphaeroides* strain background will be performed using the transposon encoded antibiotic resistance. Phenotypic analysis of the resulting null allele will be used to characterize potential physiological roles for *pfpI* in *R. sphaeroides*.

### **IS "PHANTOM LIMB" AN EXPRESSION OF CORTICAL REORGANIZATION?**

*Scott Meyer (Deborah J. Aks), Department of Psychology, University of Wisconsin-Whitewater, 800 W. Main Street, Whitewater, WI 53190.*

Exploring perceptual correlates of cortical reorganization has been a focus of recent research on phantom limb pain (e.g., Flor, Elbert, Knecht, Wienbruch, Pantev, Birbaumer, Larbig, & Taub, 1995; Ramachandran, Rogers-Ramachandran & Stewart, 1992). The surprising finding of phantom sensations arising from tactile stimulation of amputees' intact body regions suggests phantom sensations may involve cortical reorganization following amputation. Recent work on stroke recovery (Liepert et al, 2000), and use-dependent cortical plasticity (Elbert et al, 1995) suggest cortical remapping or unmasking may underlie these phenomena. Our initial study surveyed 27 amputees on their perceived sensations in their phantom limbs. While phantom sensations were reported in 24 patients, none reported activation of their phantom limbs from stimulation of facial & other intact body regions. Since subject bias may have been problematic in uncovering such "tactile confusions" we conducted a second study using a

trained investigator to directly stimulate regions of the body (e.g., face & neck for arm amputees and trunk & side of the body for leg amputees. Preliminary results showed misrepresented perceptions of tactile stimulation in one out of three. Distinct reporting techniques may account for the discrepant results. We will discuss these differences in light of potential mechanisms of phantom limb sensations.

### **EVALUATION OF A PILOT MENTORING PROGRAM FOR PSYCHOLOGISTS WITH DISABILITIES**

*Pamela K. Miller, Stephanie J. Wood (Katherine Schneider and Mickey Crothers), Department of Psychology, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

Mentoring has been shown to increase the participation of marginalized groups such as women and minorities in various professions. Less than .5% of American Psychological Association members report having a disability, compared with 14% of Americans in general. Under the aegis of the Disability Issues in Psychology a pilot mentoring program was designed, advertised and implemented. Psychologists with disabilities were matched with graduate students in similar fields of psychology and with similar disabilities. After six months of participating in the mentoring program, the 28 mentors and the 28 mentees were asked to complete an anonymous questionnaire to evaluate their satisfaction with the match and the perceived benefits of the mentoring relationship. Questionnaires were also sent to the 19 unmatched volunteer mentors, eliciting information about their willingness to participate in, and their ideas for future directions for, this mentoring effort. Results will be analyzed using both quantitative and qualitative methods. Discussion will focus both on the mentors' and the mentees' perceptions of the mentoring relationship. The information from the questionnaires will also be used to suggest directions the Committee on Disability Issues in Psychology might consider for future mentoring projects.

### **REAL-TIME GEO-ARCHAEOLOGICAL DIGITAL DATABASE FOR THE CAVE OF LETTERS, ISRAEL**

*Christopher M. Morton (Dr. Harry M. Jol), Department of Geography, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

Real-time archaeological digital data sets were collected and stored directly into a relational database for the first time during the John F. Merrill 2000 Expedition to the Cave Of Letters, Israel. Through the use of a Geographical Information Systems (GIS) program, Field Notes, and a portable Fujitsu Stylistic 1200 pen top computer all archaeological discoveries at this important Israeli site were recorded into the database including details of loci and baskets. Their exact locations were also plotted on a previously developed digital cave map. Thirty-three loci containing 231 baskets throughout the 3 chamber cave were entered into the database during the 3-week expedition. The accuracy and efficiency of the data collection in this rugged cave environment was analyzed and found to contain distance errors of no greater than 0.5 meters. During the expedition the initial version previously built relational database was determined not to be flexible enough for long term excavations. The future of digital archaeological cataloging is at the heart of the research, and the results are crucial in

designing, modifying, and maintaining a real-time archaeological digital database and cataloging system which could be used at on-going digs worldwide.

### **CLOSING THE GAP: BRINGING RESEARCH AND DESIGN TOGETHER**

*Heather L. Mortvedt, Christine M. McCarthy (Nisha Fernando and Dr. Kathe Stumpf), Division of Interior Architecture, University of Wisconsin–Stevens Point, 2100 Main Street, Stevens Point, Wisconsin 54481-3897.*

Designers do not design from a black box. This poster presentation will identify the research data collection methods that can be integrated into the design process. In the field, a typical design project does not include in-depth research into existing conditions and sense of place of a historic building. This poster will examine a historic university building using basic research approaches (archival, interviews, and observations), and demonstrate how this can be integrated into the design process.

### **LINEAR CODES**

*Kevin L. Neff (Diane Benjamin), Mathematics Department, University of Wisconsin-Platteville, 1 University Plaza, Platteville, WI 53818-3099.*

In our world, data is often transmitted over noisy channels. It is in the best interest of the sender and receiver that the data is correctly transmitted. Linear codes provide a way to encode and decode information quickly. The mathematics and theory behind linear block codes, from error detection and correction, to decoding and design of new codes, is explained from a combinatoric viewpoint.

### **HEALTHY TEETH, HEALTHY SMILES: A PROGRAM FOR DAYCARE CHILDREN ON DENTAL HYGIENE**

*Andrea Neisius (Justin A. Odulana), Department of Health Education and Health Promotion, Community Health Education, University of Wisconsin-La Crosse, 1725 State Street, La Crosse, WI 54601.*

A review of literature suggested that there is a need for oral hygiene education among daycare children. This poster presentation of the program entitled “Healthy Teeth, Healthy Smiles” provide ideas for teachers, daycare providers, and parents who might want to develop an oral hygiene education for those under their care.

### **SYNTHESIS OF DISUBSTITUTED TITANOCENE THIOLATES USING GRIGNARD REAGENTS**

*Terry S. Neumann (Dr. Magdalena Pala), Department of Chemistry, University of Wisconsin-River Falls, 410 S. Third St., River Falls, WI 54022.*

This poster will describe an experiment involving the organometallic synthesis using titanocene chloride and the Grignard reagent, phenyl magnesium bromide. This is an attempt to substitute the chlorine on the titanium with the phenyl group. The overall goal of this experiment is to prepare an asymmetrically disubstituted titanocene thiolates. This may be accomplished through the two-step reaction. The first step involving the displacement of phenyl group by a thiol. The second step using the reaction of metal bound chloride with thio-salts. This is a new approach to the synthesis of the

asymmetrically disubstituted titanocene thiolates. The synthesis is done under nitrogen, as the intermediate and product are air sensitive.

### **ASSESSING HEALTH STATUS, DIETARY HABITS AND NUTRITION KNOWLEDGE IN FRESHMAN COLLEGE WOMEN**

*Deanna Rogan, Meredith Nordberg, Leslie Haynes (Dr. Esther Fahm), Department of Food & Nutrition, University of Wisconsin-Stout, P.O. Box 790, Menomonie, WI 54751-0790.*

Poor diets and/or sedentary lifestyles are responsible for 14% of all deaths in the U.S., at least 20% of deaths from cardiovascular disease and stroke, and 30% of cancers. The objective for this community assessment was to survey the prevalence of unhealthy dietary habits, smoking, and alcohol consumption of college women. The population included twenty 18-24 year old females, residing in university residence halls at UW-Stout. Body weights and heights were used to calculate Body Mass Index (BMI). Data collected by a survey instrument included alcohol and tobacco use, daily servings from each food pyramid group, and diet-health knowledge. The BMI showed that 15% were overweight. The survey frequencies indicated that 80% consumed two or more servings of alcohol at one time, 10% smoked cigarettes, and 40-50% did not consume recommended amounts from the meat, vegetable, grain, fruit and dairy groups. The results were utilized to plan a nutrition education intervention addressing knowledge gaps about fiber, the food guide pyramid, and dietary fats. Lesson plans, including objectives, instructional materials, and nutrition messages were developed. The outcome of this project indicates the effectiveness of community assessment in targeting a specific population for nutrition intervention.

### **PARABOLIC DUNES AND AGRICULTURAL LAND USE: GLACIAL LAKE HIND BASIN, SOUTHWESTERN MANITOBA, CANADA**

*Casie M. Ollendick, Joshua T. Lahner, Kimberly A. Long (Garry L. Running IV), Department of Geography, University of Wisconsin-Eau Claire, Eau Claire, WI 54702-4004.*

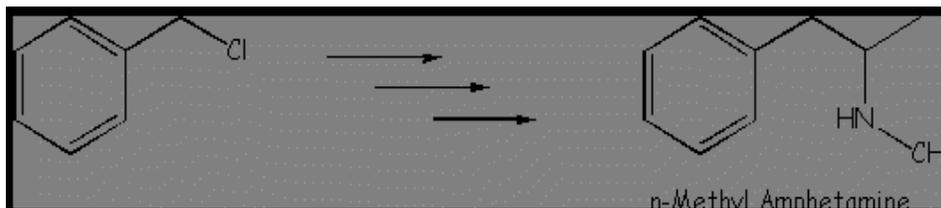
The Glacial Lake Hind Basin (southwestern Manitoba) is one of four localities in the Canadian prairies currently under investigation as part of the multi-disciplinary SCAPE project (Study of Cultural Adaptations in the Canadian Prairie Ecozones). On a broad scale, my research will provide the SCAPE project with coverage maps of the Glacial Lake Hind Basin, which will, in turn, provide the SCAPE researchers with information on the cultural adaptations, and modifications of this study area. The purpose of this poster is to present the results of research conducted to determine dune orientation and impact on modern agricultural land use in the Glacial Lake Hind Basin. The dominant landforms over much of the basin are eolian sand dunes. Previous research has indicated that these dunes were constructed by episodic eolian deposition during postglacial time. However, dune orientation, conditions of dune formation, and their impact (if any) on modern agricultural land use is not known. Aerial photographs were used to identify dunes and their orientation. These photographs were then imported into a GIS database, which was used to overlay the dunes and the land use coverages. Finally, GIS-based map coverages of the distribution of dune fields and land use within the study area were constructed using ArcView. Though analysis is still ongoing, some preliminary results

can be reported. First, dunes in the study area are generally orientated northwest to southeast. This orientation is consistent with the modern wind regime. Therefore, the dunes were formed under environmental conditions similar to those of the present. Second, percentage of grazing land is greater, and cultivated field dimensions decrease within the dune fields. This result indicated that the dune lands used today might have been used differently by other cultures in the past.

### **TOWARDS THE MULTI-STEP MICROSCALE SYNTHESIS OF n-METHYL AMPHETAMINE FOR THE UNDERGRADUATE ORGANIC CHEMISTRY LABORATORY**

*Ciana L. Olson, Craig C. Crompton (Michael J. Petro), Department of Chemistry, University of Wisconsin-Rock County, 2909 Kellogg Avenue, Janesville, WI 53546-5699.*

The advent of microscale organic chemistry laboratory experiments at the undergraduate level has reduced cost and hazard associated with the traditional experiments performed for this course. Unfortunately, there are very few multi-step experiments utilizing microscale techniques. We are working towards preparing experiments designed to overcome this deficiency, utilizing reactions that are considered typical reactions, but sequenced into a multi-step synthesis. For example, by combining a Grignard reaction, oxidation of the resulting alcohol, followed by reductive amination in this order one can prepare the title compound. Results of this effort will be presented.



### **ANALYSIS OF SOIL SAMPLES FOR ELEVATED LEVELS OF LEAD, CADMIUM AND CHROMIUM**

*Matt Olson, Mike Fischer (Dr. Paul Taylor), Chemistry Department, University of Wisconsin-La Crosse, 1725 State Street, La Crosse, WI 54601.*

Lead is a particularly environmentally troublesome element. It gets into soil primarily from the erosion of paint from older homes. Once in the soil, children who are very susceptible to lead poisoning can ingest it. We report in this presentation, the results of an undergraduate research project that involved microwave digestion of the soil samples and analysis of the resulting solution via Inductively Coupled Plasma Emission Spectroscopy (ICP). Soil samples were taken from around homes and gardens in the La Crosse area and were assayed for lead, cadmium, and chromium.

### **DAYLIGHTING DESIGN FOR ARCHITECTS**

*Paul Alan Perez (Michael Utzinger, Gerald Weisman, Ph.D.), School of Architecture and Urban Planning, University of Wisconsin-Milwaukee, 2310 E. Hartford Avenue, Milwaukee, WI 53211.*

What is happening today in the architectural world is that architects are trying to effectively use daylight in buildings to reduce energy consumption. Within this, architects are currently relying on computer simulated software programs such as

“Lumen Micro” to perform daylight design calculations in new construction. What I have done is structure a program to test how accurate the predictions of Lumen Micro are, and how it compares to the actual daylight of a typical office room at the University of Wisconsin-Milwaukee, School of Architecture and Urban Planning. The way I am going to go about doing this test is not by building an actual structure, but by using a computer to simulate what the daylight levels would be, and then compare them with what has been designed for that space. The purpose of this research is to test the validity of “Lumen Micro” daylight design software program.

#### **ENHANCEMENT OF THE ANTICARCINOGENIC POTENTIAL OF SOYMILK**

*Kristen K. Puhl, Judy B. Gully (Dr. Ana M.Q. Vande Linde), Department of Chemistry, University of Wisconsin-Stout, P.O. Box 790, Menomonie, WI 54751-0790.*

Genistein, a soy isoflavone, may play a role in the prevention of cancer. In soy products, the concentration of the glucoside form of genistein (called genistin) is substantially higher than the non-glucoside form. The biological effects, bioavailability, and physiological activities of these compounds are dependent on the chemical form. Studies show that genistein is more bioavailable than genistin. This suggests that in order to obtain the maximum health benefit of genistein from soy products, it should be made available in its non-glucoside form. This study investigated the effect of various procedures used in producing soymilk on the concentration of genistein. The effects of using acidic soaking solutions, and the addition of b-glucosidase enzyme, were studied. The objective of the study is to hydrolyze genistin to genistein in the process of making soymilk. The concentration of genistein in soymilk made from beans that were soaked in hydrochloric acid solutions ranges from  $347.2 \pm 1.9$  mg/g dry sample to  $474.6 \pm 10.1$  mg/g dry sample. In soymilk prepared by adding b-glucosidase enzyme to the slurry, the genistein content is  $648.2 \pm 3.5$  mg/g dry sample. The genistein content of regular soymilk is  $78.2 \pm 3.5$  mg/g dry sample. It is concluded that the concentration of genistein in soymilk can be increased significantly by soaking the beans in hydrochloric acid solution or by adding b-glucosidase enzyme to the slurry.

#### **SEARCHING FOR NOVEL BIOINDICATORS TO BE USED IN THE ASSESSMENT OF WATER QUALITY**

*Jodi D. Quam, Dianne M. Rodman, Alicia R. Muelling (Grace Thornhill), Biology Department, University of Wisconsin-River Falls, 410 S. Third Street, River Falls, WI 54022.*

The Centers for Disease Control and Prevention have estimated that 900,000 illnesses and 900 deaths occur each year from disease carried by contaminated drinking and recreational waters. Most of the illnesses are of unknown origin. The Environmental Protection Agency (EPA) has guidelines for two organisms for use as biological indicators of water quality, *Escherichia coli* and enterococci. These organisms are indicators of fecal contamination and are not sufficient to indicate degradation of water quality due to urban or agricultural runoff and thermal pollution. Effective risk assessment of overall water quality depends on the construction of a database that includes information on the sources, frequency of occurrence, survival and transport of waterborne pathogens of non-fecal origin. According to the EPA, this database does not exist. The Kinnickinnic River offers an excellent opportunity to contribute to building

this much-needed database of information as it has sites that are pristine (minimally impacted), in decline (polluted) and impacted by urbanization and development as well as agricultural run-off. First, we are assessing the presence and distribution of specific non-enteric pathogens at selected sites along the Kinnickinnic. Our second approach is the identification of a consortium of psychrophilic organisms that signal the onset of thermal pollution.

### **INFLUENCE OF PERCEIVED BARRIERS ON PARTICIPATION IN RESTORATIVE ACTIVITIES BY COMMUNITY-DWELLING ELDERS**

*Shelly K. Quinn (Debra A. Jansen, RN, PhD), Adult Health Nursing, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

As people get older, their capacity to direct attention (CDA) appears to decline. This capacity is important because it allows people to concentrate and manage the daily routines of life. Based on the Kaplan and Kaplan Framework of Directed Attentional Fatigue and Restoration, exposure to mentally restorative activities (e.g., observing nature and walking in the park) is theoretically associated with improved CDA and feelings of greater mental energy, peacefulness, and refreshment. As part of a larger study, 30 (28 women, 2 men) community-dwelling elders (ages 65-92 years;  $\bar{M}$  = 75 years) were interviewed regarding the types of restorative activities in which they engaged. Additional data was gathered regarding barriers. The purpose of this study was to determine the types of barriers older people perceive as interfering with their ability to participate in restorative activities. A content analysis of themes produced 12 categories of barriers: health limitations, lack of time, transportation difficulties, age, lack of a companion, financial constraints, weather, safety, distance from family, lack of space, limited opportunities, and additional constraints. Information regarding barriers may be helpful in developing feasible means of incorporating restorative-type activities into the lives of older people in need of restoration.

### **CHEMISTRY AND SPACE SCIENCE: THE COMPLEXATION OF GUANAZOLE AND URAZOLE WITH METALS**

*Kevin J. Rapp (Vera M. Kolb), Department of Chemistry, University of Wisconsin-Parkside, 900 Wood Road, Kenosha, WI 53141.*

Nitrogen heterocyclic compounds, guanazole (Gz) and urazole (Uz) are prebiotic molecules whose existence on meteorites is suspected. Since Gz is known to make complexes with metals that are commonly found on meteorites, we posed a question as to whether Gz could be isolated from meteorites. Urazole complexation with metals has not been studied previously. To elucidate these questions, we started by preparation and chemical study of Gz metal complexes. Each of the nitrate salts of iron, cobalt, nickel, zinc, and silver, were reacted with Gz. Our preliminary results indicate that in all cases Gz makes complexes, as described previously by other authors. We are currently investigating reaction of Uz with metals. Infrared spectroscopy and solubility characteristics were utilized to confirm complex formation. Other authors have proposed that in the complexation of Gz with metals, the ring nitrogens act as donor atoms due to charge distribution. To confirm this, we have performed ab initio calculations. Our ongoing study, using computational methods on the various tautomers of Gz, may help to explain or offer clues as to which tautomeric form of Gz is responsible for metal complex

formation. (The Wisconsin Space Grant Consortium/NASA, to whom gratitude is expressed, has sponsored this work).

### **GURWITSCH'S ACCOUNT OF CONSCIOUSNESS AND PERCEPTION IN TERMS OF GESTALTS**

*Benjamin Reiss (David Galaty), Department of Humanistic Studies, University of Wisconsin-Green Bay, 2420 Nicolet Drive, Green Bay, WI 54311-7001.*

Liminality is defined in the Victor Turner essay *Liminality and Communitas* as the period characterized by separation or ambiguity from the values of the preceding state and values yet to be realized. During this period of time, an individual's perspective may change or widen in scope. For the purpose of applying this to human expression, creativity then refers to viewing life through different perspectives or a multitude of overlapping perspectives. Creativity is not the spontaneous generation of an idea from a singular perspective; rather it is the expansion of perspective. The role of the artist is as a liminal figure, the medium between the ideal and real in terms of creation. An artist has an ideal or conception in mind of what the final product should be. The finished product is the reaggregation of that ideal to reality through the medium of the artist, therefore the artist is liminal, a transition between two states. Supporting examples focus on the examination of Caravaggio's art and liminal lifestyle as well as Francis Ford Coppola's approach to filmmaking as documented in *Hearts of Darkness*. Also included, different conceptions of the role of the human spirit through the works of Cassirer, Marx and Nietzsche.

### **PROTEIN EXPORT MECHANISMS IN *PASTEURELLA MULTOCIDA***

*Mirjana Ristic-Petrovic, Kelly A. Letsom, (Carmel Ruffolo), Department of Biological Sciences, University of Wisconsin-Parkside, 900 Wood Road, Kenosha, WI 53141.*

*Pasteurella multocida* is a Gram-negative bacterial pathogen that causes many different diseases in animals and humans. Like many bacterial pathogens, *P. multocida* expresses type IV fimbriae. Fimbriae are long protein appendages that extend out from the bacterial outer membrane. It is generally thought that type IV fimbriae enable bacteria to attach to host surfaces, which is associated with bacterial virulence. The bacterial type II secretion system secretes proteins, which are involved in degrading host tissue and is also required for the assembly of type IV fimbriae. This study focuses on determining if the type II secretion system is involved in the assembly of fimbriae in *P. multocida* and if the system secretes other proteins that are important for *P. multocida* virulence. Consequently, the *P. multocida* gene that encodes for the fimbrial protein, *ptfA*, and three other genes needed for fimbrial assembly, *ptfB*, *ptfC* and *ptfD*, have been cloned and introduced into *E. coli* cells containing the type II secretion system. The resulting clones were assessed for fimbrial expression. Expression of fimbriae indicates that *P. multocida* contains the type II secretion system, thus other *P. multocida* proteins that are exported by the secretion system will be able to be identified.

### **CADHERIN'S INTRACELLULAR DOMAIN MEDIATES XEPHA4 SIGNALING TO REGULATE CELL ADHESION DURING DEVELOPMENT**

*Alan Roloff, Jaime Malcore (Jon Scales), Department of Biology, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54701-4004.*

Receptor tyrosine kinases (RTK's) play definitive roles in cell division, cell motility, and differentiation during embryonic development. One of the largest families of RTKs is the Eph receptor family. These RTKs play important roles in nervous system development. One specific Eph receptor XephA4 (previously known as Pagliaccio) has been shown to down-regulate cell adhesion between blastomeres when ectopically expressed via mRNA injection into *Xenopus laevis* embryos. The localized regions of dissociation are referred to as craters. During early *Xenopus* development, the primary cell adhesion system is the cadherin-based adherens junctions which are a complex of cadherin and catenins connected to the actin cytoskeleton. The observed dissociation suggests that XephA4 activation disrupts the function of cadherin-based adherens junctions. Dissociation can be rescued/prevented by co-expression of cadherin mRNA together with XephA4. This result suggests that cadherin and XephA4 may interact, directly or indirectly, in a common signaling pathway. We have tested C-terminal truncations of the cadherin protein in attempts to localize those regions of cadherin potentially involved in an interaction with XephA4. Interestingly, co-expression of cadherin lacking the extracellular domain, DECcad, rescues dissociation. Similarly, cadherin lacking half of the C-terminus, DECcadD83 is also capable of rescuing dissociation. We have continued to generate additional truncations of the C-terminal domain to delineate the region of cadherin which mediates the signaling of XephA4 to induce dissociation.

### **JUVENILES TRIED AS ADULTS: AGE AND FAIRNESS**

*Jaclyn K. Rudebeck (William Douglas Woody), Department of Psychology, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

States use a variety of guidelines to try juveniles who are accused of serious crimes such as murder. Juveniles as young as 13 and as old as 17 may be tried by a jury and sentenced as adults. Jury members are required by law to separate the age of the defendant from decisions of culpability and punishment. Two hundred jury-eligible students at the University of Wisconsin–Eau Claire read standard jury instructions and a transcript of a criminal case depicting a defendant who may or may not be guilty of second degree intentional homicide. The defendant was portrayed as 13, 15, 17, or 21 years of age, or no information was given for the defendant; the age of the defendant should have no legal impact on jurors' decisions of guilt or sentencing recommendations. Jurors reported whether they believed the defendant to be guilty or not guilty, their confidence in their decision, and, if they found the defendant guilty, their recommended sentence. Jurors were improperly influenced by the defendant's age. The discussion focuses on jurors' biases regarding child defendants tried as adults and how knowledge of such a bias can aid the legal community in the search for ameliorative measures.

### **GROUND PENETRATING RADAR EXPERIMENTS AT FOREST HILLS CEMETERY, EAU CLAIRE, WISCONSIN**

*Nicholas W. Saeger (Harry M. Jol), Department of Geography, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

The Forest Hills cemetery in Eau Claire, Wisconsin has burial plots that are “potentially” not occupied and could possibly be for sale. While the cemetery sexton keeps extensive and up-to-date records of who is buried in what location, over the course of 150 years, details of older burials are often not known due to old wooden markers that have decayed

or paper records that have been misplaced. While the sexton can get a sense of where the older burial sites may be (break in the soil or a depression), there is no real way to know for sure, other than digging an exploratory hole. Ground penetrating radar (GPR) provides a non-invasive manner in which to see if there were previous burials at a location. The specific goal of the project was to concentrate on a test area of burial plots to determine if there is potentially open space for new plots to be sold, or if these areas are already occupied. GPR results showed that burials previous to 1950 were more difficult to recognize due to decomposition in sandy soils while burials post-1950 provided very strong diffraction patterns that in some cases shadowed nearby burial plots.

### **TESTOSTERONE REPLACEMENT RESTORES PITUITARY LUTEINIZING HORMONE (LH) RESPONSES TO GALANIN IN CASTRATED MALE RATS**

*Joseph Scheffen, Joshua Desotelle (Dr. Angela Bauer-Dantoin), Human Biology Department, University of Wisconsin-Green Bay, 2420 Nicolet Drive, Green Bay, WI 54311-7001.*

Luteinizing hormone (LH) secretion from the pituitary gland is triggered by the release of gonadotropin-releasing hormone (GnRH) from the hypothalamus. Recent studies in our laboratory have demonstrated that another hypothalamic factor, galanin, also regulates pituitary LH secretion. We recently showed that galanin stimulates LH secretion and also augments GnRH-stimulated LH secretion in intact male rats. These effects of galanin were not observed in castrated male rats. To determine whether the pituitary effects of galanin are dependent on the presense of testosterone (T), we looked at the ability of galanin (with or without GnRH) to affect LH secretion in 1) castrated and 2) castrated, T-replaced male rats. Results from the study demonstrate that T-replacement restores the ability of galanin to directly stimulate LH secretion and also augment GnRH-stimulated LH secretion in castrated male rats. These findings indicate that the pituitary effects of galanin are steroid-dependent in male rats. Further studies are underway to determine if T upregulates galanin receptor expression in the male pituitary.

### **THE EFFECT OF SURFACE GRADES ON THE STRIDE PARAMETERES OF BUTTON QUAIL**

*Tara L. Scheunemann (Christy A. Carello), Department of Biology, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

Button Quail (*Coturnix chinensis*) are ground foragers and therefore spend a predominant amount of time walking and running. Stride parameters and joint kinematics are useful tools for evaluating how surface substrates affect the cost of locomotion because they reveal the relative time and range of motion devoted to various stages of each step. Four parameters were analyzed in this study: stance phase, swing phase, cycle period and duty factor. The entire step, from the moment of the first foot contact with the ground to the return of the foot to the ground after the swing phase, is defined as the cycle period. Stance phase is defined as the amount of time that the foot is in contact with the ground. We used a high speed digital camera to film Button Quail running on a motorized treadmill on a level surface, two inclines (10° and 20°) and a decline (10°). We found that both stance phase and cycle period decreased from decline to level, but increased from level to incline. We also found that the swing phase increased during incline running, thus allowing more time to generate force for the remainder of the cycle period.

## **THE RELATIONSHIP BETWEEN FEAR OF AIDS AND SEXUAL BEHAVIOR AMONG COLLEGE STUDENTS**

*Sheila A. Schmitz, Elizabeth A. Alvarez, (Marie K. Crothers), Department of Psychology, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

The purpose of this project is to investigate the relationship between college students' fear of AIDS and their sexual behaviors. Seventy-five participants will be recruited from the UWEC student body via announcements in psychology classes. All participants will be between 18 and 25 years of age. Participants will be asked to complete three brief questionnaires: 1) a demographic form 2) the Fear of AIDS Scale, and 3) either the Sexual Behavior Questionnaire or the Virginitiy Scale (depending on sexual activity status). It is hypothesized that students who express relatively higher levels of fear about AIDS will report more cautious sexual behavior patterns than students who express lower levels of AIDS fear. Participation will require approximately 30 minutes. Multiple linear regression techniques will be employed to analyze the resulting data set.

## **CLOTHING TO COMPOST**

*Kevin J. Schubert (Philip Parker), Department of Civil/Environmental Engineering, University of Wisconsin-Platteville, 1 University Plaza, Platteville, WI 53818-3099.*

The purpose of this research is to determine the feasibility of composting textiles. Lands End, located in Dodgeville, Wisconsin, is a catalog marketer of clothing. Pants are hemmed to length at Land's End, producing 15 tons of textile waste per year. The excess textile material is composed of cotton, wool, and synthetic blend materials. Other ingredients in the proposed compost are straw, hay, or sawdust (for carbon) and manure (for nitrogen). The source of nitrogen for the compost will come from food residuals. The University of Wisconsin-Platteville operates a dining facility on campus for its dormitories. 40 to 60 pounds of waste food is generated per meal time, which is currently landfilled. For this research three distinct starting particle sizes for the textile waste will be studied. The particle size of material in compost directly affects microbial growth; increased surface area makes nutrients more available for microorganisms. Finally, the goals of this research are to produce marketable compost and divert waste materials from landfill to compost. A poster will be presented showing the preliminary results of the research.

## **NEW CHALLENGES FACING WOMEN IN POVERTY IN THE WAKE OF WISCONSIN WELFARE REFORM**

*Lora Schultz (Mary Kay Schleiter), Department of Sociology/Anthropology, University of Wisconsin-Parkside, 900 Wood Road, Kenosha, WI 53141.*

The Women and Poverty Public Education Initiative conducted extensive interviews with women throughout Wisconsin who had been previous recipients of government assistance. The sample population was taken to represent similar racial demographics to the current state population on welfare. Participants were taken from the counties of Eau Claire, La Crosse, Kenosha, Racine, Portage, Rock, Sheboygan, and Milwaukee. Participants discussed how welfare reform and the current "Wisconsin Works" program has affected them. Many expressed discontent with the lack of opportunity for furthering their education. Participants were also pessimistic about the program helping them rise

above poverty. Many felt they were simply being trapped in low-wage work, with little hope for improving their economic status.

### **LEAD ASTRAY: CONTAMINATED URBAN SOILS**

*Lora M. Schultz, Vincent E. Shaff (Lori Allen, Chemistry; Chris Evans, Geology), University of Wisconsin-Parkside, 900 Wood Road, Kenosha, WI 53141.*

Lead contamination is a serious concern in several neighborhoods in Kenosha, Wisconsin where lead-based paint is exposed on surfaces of older houses. The city and county are making concerted efforts to identify, assess, and abate houses with dangerous lead levels, especially those in which young (< 6 years) children may live. The objective of our investigation was to assess the spatial distribution and chemical form of lead in the yards surrounding these houses. We collected 29 soil samples within a regularly-spaced sampling grid. Soil samples were analyzed for total lead content, for carbonate-bound lead, and plant-available lead. Soil pH was also determined. Total lead averaged 1100 mg/g (ppm), considerably higher than the HUD limit for bare soil, which is 400 mg/g. Wisconsin state standards are more stringent: 50 ppm. Approximately 30% of the measured lead was bound by carbonate, and thus relatively immobile. Plant-available lead accounted for a smaller percentage of the total, about 15% on average. The plant-available form, however, is considered to have greater potential for moving into the food chain and is thus more dangerous. Spatial distributions of these fractions will also be presented.

### **AEOLUS: THE INHERENCE OF FIGURES**

*Jason R. Sell (Roy Arthur Swanson), Department of French, Italian, and Comparative Literature, University of Wisconsin-Milwaukee, 2310 E. Hartford Avenue, Milwaukee, WI 53211.*

Adapting the Homeric *Odyssey* to reflect the character and actions of his twentieth-century wanderers, James Joyce, in his *Ulysses*, has reconstructed many of the artistic elements of the literature of classical antiquity. Furthermore, the classical presence within the work is particularly clear in the 'Aeolus' chapter. Here, Joyce utilizes figures of classical rhetoric, or unexpected word-arrangements, which enhance and determine the meaning of the text. Thus far, researchers have largely either ignored or misidentified the classical figures in *Ulysses*. Analysis in this study will not only contribute to the literary discussion of *Ulysses*, but will also aid readers in more directly understanding the author's layered composition.

### **LIFE HISTORY OF THE VERVET MONKEY**

*Jennifer Lea Sharpe (Trudy Turner), Department of Anthropology, University of Wisconsin-Milwaukee, 2310 E. Hartford Avenue, Milwaukee, WI 53211.*

Life History theory is a relatively new field of study that has the ability to answer important evolutionary questions. Most of the information collected in recent decades, however, has been focused on a select few especially charismatic species (e.g., chimpanzees and gorillas), and the issues researched have been highly specialized, including genetics, endocrinology, and morphology. In order to gain a fuller understanding of the larger issues of primate ecology and evolution, however, we must look beyond a few particularly popular species and utilize a range of disciplines. The

Vervet Monkey (*Cercopithecus aethiops*) is a highly adaptive old world primate species, widely distributed throughout sub-Saharan Africa. The goal of our research on the Vervet Monkey is to bring cross-disciplinary methods together to find correlations of how these monkeys live in different environments. The focus of my research deals with the systematics (or taxonomy) of the Vervet. This information on the systematics of the Vervet, will then be put together with the information on this species' genetics, endocrinology, morphology, and ecology, to construct its Life History. That Life History will then provide a solid base for understanding the forces that shape the basic features of the Vervet monkey.

### **KINETIC AND REDOX POTENTIAL STUDIES OF Fe(III) PROTEINS FROM BACTERIAL SOURCES**

*Rebecca D. Siemer, Michael P. Weiss (Marcia A. Miller-Rodeberg), Department of Chemistry, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

Studies of have shown that the redox potential of an enzyme is a sensitive indicator of subtle changes at the active site by which catalysis is regulated. Our work will focus on redox potential studies of two different classes of Fe (III) proteins, the dihydroxybenzoate dioxygenase, protocatechuate 3,4-dioxygenase (3,4-PCD) and the heme enzyme, catalase. 3,4-PCD is considered the archetypal Fe(III) dioxygenase, and has been the focus of numerous crystallographic, kinetic, and spectroscopic studies. The enzyme catalyzes a key step in the microbial degradation of aromatic compounds- cleavage of the aromatic ring. Our goal is to determine the redox potential of 3,4-PCD as native enzyme and complexed with various substrates and inhibitors. 3,4-PCD has been isolated from *P. aeruginosa* using standard purification techniques. Active, purified enzyme has been obtained and is currently being characterized. We are also currently isolating and characterizing two heme enzymes, which catalyze the disproportionation of hydrogen peroxide, from two different bacterial sources. Based on kinetic analysis, the *P. aeruginosa* heme enzyme is likely to be a catalase. The redox potentials of the catalases will also be determined. Initial results from the purification and characterization of these enzymes will be presented.

### **LITTER BUTTS: A LOOK AT THE RELATIONSHIP AMONG SMOKERS' GENDER, SOCIAL ENVIRONMENT & CIGARETTE DISPOSAL**

*Julie M. Slowiak, Alicia A. Bear (Blaine F. Peden), Department of Psychology, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

Cigarette butt litter is a problem in our society as a whole and, more specifically, on college campuses. A naturalistic observation of 75 smokers, 28 males and 47 females, evaluated the associations among gender, social environment, and way of cigarette disposal. Prior research had analyzed these variables separately or in association with other related variables. Two observers coded observations of gender, whether the participant was alone or in a group, and how they disposed of their cigarette butts outside of an academic building or outside of a campus dormitory. Chi-square analysis indicated statistically significant relationships between gender and way of deposit, and also between gender and social environment at one location. There was no association between social environment and way of deposit. These results supported the hypotheses

that males would neglect the use of receptacles more than females, and secondly, that females smoked in groups more than males. The latter result may infer that smoking is more of a social affair for females. Included are implications of how to keep the University of Wisconsin–Eau Claire Wisconsin’s most beautiful campus.

### **INSECTS ASSOCIATED WITH THE BLOOM OF *OPUNTIA FRAGILIS* HAWORTH**

*James J. Small Hoover (Dr. Charles R. Bomar), Department of Biology, University of Wisconsin-Stout, P.O. Box 790 Menomonie, WI 54751-0790.*

Insects associated with the bloom of the fragile prickly pear, *Opuntia fragilis* Haworth, were surveyed at three locations in Pepin County, Wisconsin. Flowers were observed at two of these sites, where one 20-acre site had numerous blooms in a 0.5-acre area and a 0.1-acre site had only one bloom. Bloom may be related to other nutritional factors in the soil and a relationship between two lichens, *Cladonia mitis* Sandst. and *Cladonia rei* Schaer and a club moss, *Selaginella ruprestis* (L.). Three insects were observed in relation to the bloom. The False Japanese Beetle, *Strigoderma arvicola* (Fabr.), was primarily a blossom feeder, while two species of wasps (Hymenoptera: Halictidae), *Agapostemon sireceus* (Forster) and *Dialictus* sp, were observed pollinating the cactus. No fruits were observed on the cactus post-bloom, thus pollination is most likely inconsequential, and plant reproduction is completed vegetatively.

### **RESTORATION OF KARNER BLUE BUTTERFLY HABITAT IN THE EAU CLAIRE RIVER BASIN**

*Jill M. Sporrang (Paula K. Kleintjes), Department of Biology, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

The success of wild lupine (*Lupinus perennis*) seeding is being measured in the Eau Claire River basin. Lupine is the larval host plant of the federally endangered Karner blue butterfly. In fall 1997, a dry sand prairie seed mixture was planted for a habitat mitigation project, which included 10% wild lupine. By August 2000, lupine was established at this site (with a mean of 0.026 lupine/m<sup>2</sup>) along with a population of Karners. In 2000, the Eau Claire County Natural Resources Conservation Service began including lupine seed in all Conservation Reserve Program (CRP) native prairie plant mixes. We evaluated whether CRP sites were appropriate (e.g., soil, light, vegetation, butterfly range) for lupine establishment and if so, how did they compare with the successfully seeded habitat mitigation project? Out of 32 sites, half existed within the Karners documented range, three contained stands of lupine, and one supported a population of Karners. In spring 2000, sites were planted with a mix of native grasses and forbs, and lupine was planted in fall (25-40 seeds/m<sup>2</sup>). The successful germination of lupine/m<sup>2</sup> will be determined in spring 2001 by transect counts (n=3) in each of 15 sites and compared with first year results for the seeded dry sand prairie.

### **INFORMAL LABELING OF STUDENTS: EFFECT ON FUTURE TEACHERS**

*Sandra Stanke (Kathleen Stetter), Department of Psychology, University of Wisconsin-Oshkosh, 800 Algoma Boulevard, Oshkosh, WI 54901.*

Findings supporting that labeling bias exists could have far reaching implications. Caution against this phenomena could be addressed as future teachers receive training.

Labeling could affect children's educational careers, cumulating in choices that influence a lifetime. Research has examined formal labels, but little has been done to examine the effects of informal label or "teacher talk." This experiment addressed informal labels (positive, negative, or no label) given to children in educational environments, and evaluated how 30 teachers in training viewed a child's behavior, dependent upon the informal label. I demonstrated how "teacher talk" affected expectations of a child's future academic and social success. Participants selected a disciplinary response appropriate as that child's teacher and made predictions about the child's future success. A single factor repeated measures analysis of variance indicated significant effects for labels and no labels for both response severity and ratings of social and academic success. Participants also completed a forced-answer questionnaire regarding their wish to be informed of the child's behavior from last year's teacher. This measured how teachers inadvertently propagated informal labeling and its possible negative repercussions. Findings supporting labeling bias have far reaching implications. Caution against this phenomena could be addressed as future teachers receive training or current teachers receive in service.

#### **ASSESSMENT OF HEALTH STATUS AND NUTRITION KNOWLEDGE OF UNIVERSITY OF WISCONSIN-STOUT UNDERGRADUATE STUDENTS**

*Nicole J. Steinhoff, Courtney E. Sennhenn (Dr. Esther G. Fahm), Department of Food and Nutrition, University of Wisconsin-Stout, Menomonie, WI 54751-0790.*

Diet is related to major health problems in the United States. Researchers estimate that poor diets account for over 300,000 deaths a year. College students are vulnerable to poor diets and experience high morbidity rates from behavioral risk factors. A community nutrition assessment of college students was conducted during September through December 2000 to assess the health status and nutrition knowledge of 18-24 year old male and female undergraduate college students. Secondary data was obtained on U.S. undergraduate students defined as the community and direct measurements were obtained on a target group of 107 (53% female, 47% male) UW-Stout undergraduates using a 23-question nutrition-related survey. Results showed that college students lack the nutrition knowledge to promote healthy lifestyles particularly regarding fiber, alcohol, energy requirements, and the food guide pyramid. Approximately 40% of the community and 33% of the target group smoke cigarettes and 58% of the community and 71% of the target group consume alcohol. An intervention plan was developed to modify the undergraduate Nutrition for Healthy Living course at the UW-Stout to focus on content areas representing the greatest needs found in this assessment.

#### **ORIGINS AND INTERPRETATIONS OF THE CONCEPT OF CONVOLUTION IN PURE AND APPLIED MATHEMATICS**

*Benjamin R. Rougier, Craig A. Rykal, John A. Rivera, Jeffrey J. Swanson, Justin J. Malaise (Dr. Steven Deckelman), Department of Mathematics, Statistics, and Computer Science, University of Wisconsin-Stout, P.O. Box 790, Menomonie, WI 54751-0790.*

The convolution of two functions is an important concept in a number of areas of pure and applied mathematics such as Fourier Analysis, Differential Equations, Approximation Theory, and Image Processing. Nevertheless, convolutions often seem unintuitive and difficult to grasp for beginners. This project explores the origins of the convolution concept as well as some computer graphic and physical interpretations of

convolution which illustrate various ways the technique of smoothing can be used to solve some real world problems.

### **EXPLORING STUDENTS' EXPERIENCES WITH GROUP WORK IN COLLEGE CLASSROOMS**

*Sara K. Synovic (Renee A. Meyers), Department of Communication, University of Wisconsin-Milwaukee, 2310 E. Hartford Avenue, Milwaukee, WI 53211.*

Although we may not think it, being able to work in groups effectively is an important tool in life. More and more students are entering the work force with little or no knowledge of how to work in groups efficiently. Why is that? Why do people have a hard time communicating with other people in groups? Did something happen during their education that caused people to hate working in groups? Is the school system not teaching effective group skills or are students not working cooperatively together? One way of understanding the difficulties of cooperative learning is through the use of surveys. Three introductory communication classes participated this last semester in a survey where they answered questions about techniques they have used in group work and the pros and cons of using group work in class. With the information we received from the survey, we hope to supply students and teachers with a better understanding of how to interpret cooperative learning.

### **FOURIER ANALYSIS AND LAND COVER CLASSIFICATION FOR LANDSAT SATELLITE IMAGES**

*Brenda A. Verthein (Cynthia J. Berlin), Department of Geography and Earth Science, University of Wisconsin-La Crosse, 1725 State Street, La Crosse, WI 54601.*

A Fourier Analysis is a technique used within image processing software that allows the computer analyst to perform applications to correct noise or features of error on a satellite image. The following study outlines different techniques used within the Fourier transformation editor of the ERDAS Imagine software to correct striping on a Landsat satellite image. The study area encompasses the Willapa Bay area of Washington state. By converting the image into a frequency domain, mathematical algorithms are available for application so that the user is able to pick out areas of major error. This highlights where the pattern of error is occurring by having presence in the Fourier image as bright spots and linear patterns, which makes it easier to identify the areas of focus so the Fourier removal of striping will not disrupt the original image. Several attempts to remove the striping are made using different algorithms to produce a de-striped image that is now suitable for classification and analysis. The final corrected image can then be classified using an ISODATA unsupervised classifier. Spectral signatures of the image are used to obtain surface cover types including uplands, intertidal mudflats and rivers.

### **PREPARATION OF LABORATORY EXPERIMENTS AND MANUAL FOR "CHEMISTRY OF POLYMERS"**

*Andrea J. Vroman, Aaron L. Holschbach, Dillon M. Whitmire, Jason M. Pribyl, Paul T. Mandel (Dr. Mary L. Orfield), Department of Chemistry, University of Wisconsin-Stout, P.O. Box 790, Menomonie, WI 54751-0790.*

In the Fall of 2001, the Department of Chemistry at the University of Wisconsin-Stout will offer a course titled "Chemistry of Polymers" for technology students. The students

have only one semester of chemistry and one semester of calculus. The challenge, therefore, is to prepare a course with sufficient weight to make it worthwhile while still maintaining the chemistry at a comprehensible level. In particular, the laboratory experiments present the greatest difficulty. The laboratory manual under construction contains a series of experiments designed to elucidate specific ideas which will be presented in the lecture. Four students and the PI have been working during this academic year to design, debug, time, and write usable laboratory experiments for the course. Among others, the experiments include a quick *Preparation of Five Common Polymers*, *Preparation of an Elastomer*, *Preparation of a Latex Emulsion and Acrylic Paint Using Copolymerization Techniques*, *Determination of Average Molecular Weight of Polyacrylic Acid Using Viscometry*, *Determination of the Curing Temperature of SMC Using DSC*, *The Effect of Plasticizers on  $T_G$  of Polystyrene*, *An Introduction to "Fun" Polymers*, *Identification of Polymers with FTIR* and others.

### **CHARACTERIZATION AND CONSTRUCTION OF AN OMA MUTANT IN *Escherichia coli***

*Sonia A. Wade, Kelly A. Letsom, Jeanne M. Peterson (Carmel Ruffolo), Department of Biological Sciences, University of Wisconsin-Parkside, 900 Wood Road, Kenosha, WI 53141.*

Bacterial outer membrane proteins (OMPs) have been widely studied, and the biological function of many of these has been elucidated. A novel group of OMPs, known as OMA (outer membrane antigens), has recently been identified in pathogens such as *Escherichia coli*, *Pasteurella multocida*, *Salmonella*, and *Neisseria*. Little is known about the function of OMA proteins, and studies of the *P. multocida* OMA protein show that these proteins are not only in the outer membrane, but also are exposed on the bacterial surface. Based on protein sequence analysis, OMA proteins appear to have characteristic domains that should form a channel within the membrane. Further sequence analysis shows that OMA proteins have high similarity to OMPs that export cytolysins. Cytolysins are proteins that damage and lyse animal cells. To determine if the *E. coli* OMA is involved in the export of proteins, the *oma* gene was mutated to observe loss of protein export. The *E. coli oma* gene was mutated by the insertion of an antibiotic resistant gene (kanamycin). Currently, the *E. coli oma* mutant is being characterized and compared to wild type *E. coli* to observe loss of protein. The mutant is also being used to further characterize the *P. multocida* OMA protein.

### **RATES OF FLIRTATION BY OPPOSITE-SEX COUPLES IN A HIGH AND LOW ACTIVITY BAR**

*Jill K. Wahlstrom, Kathryn L. Hamilton (Blaine F. Peden), Department of Psychology, University of Wisconsin-Eau Claire, 105 Garfield Ave., Eau Claire, WI 54702-4004.*

We became interested in the study of flirtation in Psychology 271: Methods of Research and performed two research studies on the topic. Our previous studies have shown that the rate of flirtation and the activity of the bar are positively correlated. Based on these two studies, we have replicated and extended these findings to perform the present research to strengthen our results. In this study, the activity of the bar is defined by the number of patrons attending the bar and the capacity of the bar. A flirtation is defined as a nonverbal action used to convey interest in the other person and to make him or her

look more attractive to the potential partner. Our first hypothesis is that the rate of flirtation in a heterosexual couple and the activity of a bar (high or low) are positively correlated. Our second hypothesis is that females will have a higher rate of flirtation in either bar setting when compared to males. This study will consist of unobtrusive observations of approximately 80 heterosexual couples (40 at each bar) over two weekends. We will analyze the data using Pearson's  $r$  to determine interrater agreement and  $t$ -test to determine if a correlation exists.

### **TEMPERATURE AND HYPOXIA TOLERANCE OF SELECTED FISHES FROM A HYPERTHERMAL TIDEPOOL IN THE DRY TORTUGAS**

*Heidi L. Wallman, Nann A. Fanguie, Jodie L. Rummer, Wayne A. Bennett, (Joseph Rohrer), Department of Biology, University of Wisconsin-Eau Claire, 105 Garfield Avenue, Eau Claire, WI 54702-4004.*

During hot summer months, fishes living in shallow tidally influenced rockpools on northwest Loggerhead Key in the Dry Tortugas National Park, experience marked diel temperature shifts. We sampled pools in July 2000 and documented thermal characteristics, ichthyofauna diversity, and quantified high-temperature and low-oxygen tolerance of three pool fishes. Mid-morning rockpool temperatures increased from 30.0 to 35.8°C by late afternoon. Unlike typical extreme habitats of this type, which usually contain one or two tolerant species, Loggerhead Key rockpools were populated by at least seven tropical fishes. Also, rockpools were inhabited by reef species usually found in deeper, cooler tropical waters. High temperature tolerances for three species, cocoa damselfish *Pomacentrus variabilis*, French grunt *Haemulon flavolineatum*, and white mullet *Mugil curema*, were not significantly different and ranged from 35.7 to 37.3°C. Hypoxia tolerances of French grunt (1.8 mg/L) and white mullet (2.1 mg/L) were also not significantly different; however, cocoa damselfish was significantly more tolerant of hypoxic conditions (1.36 mg/L) than the other two species. French grunt and cocoa damselfish augmented their oxygen tolerance strategy through aquatic surface respiration when dissolved oxygen levels reached 2.00 mg/L, whereas, white mullet did not. Various physiological adaptations allow Loggerhead Key fishes to exploit resources in hyperthermal habitats.

### **SWING INTO SHAPE: A PHYSICAL EXERCISE PROGRAM FOR THE ELDERLY**

*Malinda Weninger (Justin A. Odulana), Department of Health Education and Health Promotion, Community Health Education, University of Wisconsin-La Crosse, La Crosse, WI 54601.*

The necessity of physical fitness in children and adults is a frequent subject of news programs and magazines. However the need for physical fitness among the elderly is often forgotten. In this poster presentation, a physical fitness program implemented for the elderly is presented together with the findings of its evaluation.

### **THE EFFECTS OF GARLIC MUSTARD AND HERBICIDE SPRAYING ON LEAF LITTER INVERTEBRATE ABUNDANCES IN A DECIDUOUS FOREST**

*Sarah J. Wielgus, Amber L. Agamaite (Michael L. Draney), Department of Natural and Applied Sciences, University of Wisconsin-Green Bay, 2420 Nicolet Drive, Green Bay,*

WI 54311-7001.

Garlic mustard (*Alliaria petiolata*) is a common exotic species invading forests throughout the Midwestern United States. It is difficult to manage due to its rapid reproduction and pattern of spread. The most common and effective method for controlling garlic mustard spread is herbicide application. When applied to dormant garlic mustard rosettes in late fall and early spring herbicides results in >95% mortality. Use of herbicides can significantly change the native ecosystem dynamics and alter habitat suitability for birds, mammals, and insects. We measured the abundance of leaf litter invertebrates in control areas (no garlic mustard or herbicide), areas invaded by garlic mustard but receiving no herbicide treatment, and areas previously invaded by garlic mustard and subsequently treated with herbicide at Peninsula State Park, Door County, Wisconsin. Although total invertebrate abundances were not significantly different between treatments, abundances of various invertebrate groups showed considerable variation between the three treatments analyzed. Araneae were most abundant within sites where neither garlic mustard nor herbicide was present. Diptera, Lepidoptera, and Oligocheata were most abundant within garlic mustard stands where there was no herbicide spraying. Coleoptera, Hymenoptera, and Pseudoscorpiones were most abundant within sites where garlic mustard had been sprayed in the fall and spring.

### **SEX & CANDY: AN INTERACTIVE SEX EDUCATION PROGRAM FOR COLLEGE STUDENTS**

*Rebecca Wittig (Justin A. Odulana), Department of Health Education and Health Promotion, Community Health Education, University of Wisconsin-La Crosse, La Crosse, WI 54601.*

As a result of a needs assessment study, a program 'Sex and Candy' was developed to increase the knowledge of STD's among college students. This poster presentation includes components of the items discussed during the implementation of the program, and analysis of the evaluation data.

### **EVALUATING HMONG CLIENT PERCEPTIONS OF WESTERN HEALTH CARE**

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Identifying ways for evaluating two health projects involving Hmong clients is the focus of this endeavor. For both projects, feedback from the Hmong participants was essential. However, due to verbal tradition and the tendency for Hmong participants to answer positively when questioned, direct feedback and critique was difficult to obtain through the evaluation means most often used in western healthcare. The first project, Health Promotion through Radio and Television consisted of nursing students working with Hmong community leaders to plan and conduct health education programs on radio and television. The second project, Collaborative Research Discussion Groups on Hmong Culture, involved health care professionals learning about Hmong culture through discussion groups. The methodology for this project was conducting a literature review and several interviews with persons knowledgeable about Hmong culture. Themes identified through the literature and the interviews include understanding the importance of verbal tradition and personal interviews, involving community members in program

design and evaluation, considering age, gender, culture, and status of the interviewer, and employing people of the same ethnic background in delivering the health education programs. Specific strategies and implications for practice for each project are also shared through this poster.

### **GERMS AND YOUTH: AN INTERACTIVE PROGRAM FOR FIRST GRADE STUDENTS**

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The CDC states that the number one cause of death in the world is infectious disease and the use of basic precautions against the spread of disease could easily prevent many of these transmissions. However, research shows that almost one-third of people do not wash their hands after using the bathroom. This poster presentation displays a program entitled 'Germs and Youth' implemented among first grade students in La Crosse, Wisconsin.