

Center *of* Excellence  
*for* Faculty & Undergraduate Student  
Research Collaboration

**Scholarly Contributions 2005-2007**

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This edition of Scholarly Contributions of the Center of Excellence for Faculty and Undergraduate Student Research Collaboration demonstrates the broad array and quality of faculty/student collaborative research characteristic of the University of Wisconsin-Eau Claire. The 2005-2007 biennial volume documents more than 200 peer-reviewed journal articles and presentations at professional meetings with UW-Eau Claire undergraduate students as authors and co-authors. Included is the work of students and faculty from twenty-nine academic departments. This volume of work is a testament not only to student efforts, but also to the dedication of faculty who engage and mentor the students. These academically rich learning experiences are typically provided above and beyond the contractual teaching load of faculty.

Students experience many aspects of scholarship through participation in collaborative research projects and creative activity. They develop an interesting research question, design a methodology or approach for addressing the question, collect data and conduct analysis to develop conclusions and/or create an artistic product. Finally, they display or present their results. This process requires focus, perseverance, and intellectual rigor, skills a student can put to use in any post-graduate study or profession. Through the research process or creative act, students gain an understanding of how new knowledge is created, and a common by-product of the process is increased student self-confidence.

UW-Eau Claire is recognized nationally for its undergraduate research and creative projects. Most recently it is listed in the U. S. News and World Report “America’s Best Colleges 2008.” UW-Eau Claire is also listed in the “Programs to Look For” section on Undergraduate research/creative projects. It is one of a handful of regional public institutions on this list, which also includes a number of highly regarded private liberal arts colleges, private universities, and research intensive public universities.

Karen G. Havholm  
Assistant Vice Chancellor,  
Director of Center of Excellence

## **CENTER OF EXCELLENCE FOR FACULTY AND UNDERGRADUATE STUDENT RESEARCH COLLABORATION**

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The Center of Excellence for Faculty and Undergraduate Student Research Collaboration was established at UW-Eau Claire in 1988 by action of the Board of Regents of the University of Wisconsin System. This Center was built on a quarter century tradition of engaging students in collaborative research with faculty scholars and incorporating research into the undergraduate experience.

The goals of the Center include:

- enhancing the quality of undergraduate education by providing students with an opportunity to participate with faculty in research projects,
- keeping the undergraduate curriculum vital and updated by incorporating the results of current research into the curriculum,
- facilitating collaborative research among faculty and students representing diverse undergraduate programs in order to identify and address problems requiring multidisciplinary solutions, and
- encouraging undergraduate students by way of their successful research to consider advanced studies in their disciplines.

The Center has provided students with an opportunity for “hands on” experience in research, presentation of results at the annual UW-Eau Claire Student Research Day, and encouragement to present findings at meetings of professional organizations. The Center operates three programs that provide grant support for faculty and students engaged in collaborative research. These programs include Faculty/Student Research Collaboration, Summer Research Experiences for Undergraduates, and Student/Faculty Travel for the Presentation of Research Results.

The Center is funded largely with student differential tuition funds allocated for collaborative research. These student funds are augmented with support from the UW-Eau Claire Office of Research and Sponsored Programs, the UW-Eau Claire Office of Academic Affairs, the UW System Undergraduate Initiative, the UW-Eau Claire Foundation, Inc., and other extramural funding sources.

***Excellence: Our Measure, Our Motto, Our Goal.***

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UNDERGRADUATE STUDENTS

BIOLOGY

**THE EFFECTS OF PHOTIC & NON-PHOTIC STIMULI ON THE CIRCADIAN CLOCK AND ESTROUS CYCLE OF THE FEMALE SYRIAN HAMSTER.** Carly Wickhem, undergraduate student, with Daniel Janik, faculty.

*National Conference for Undergraduate Research, San Rafael, CA, 12-15 April 2007.*

Female hamsters normally have a precise 4-day estrous cycle. We have found, however, that changing the cage of a female hamster – a nonphotic circadian clock resetting stimulus - in the middle of the day before it ovulates not only resets its circadian clock by about 3 hr, but also delays its estrous cycle by one day. Cage changing in this way arouses the hamster and causes it to engage in much locomotor activity. Three experiments were conducted to examine the interaction between circadian clock resetting, locomotor activity and the estrous cycle. In the first experiment we asked whether blocking clock resetting without reducing activity reduced the effectiveness of a cage change to delay the estrous cycle. To do this, we delivered a 1-hr pulse of light 5 hr after the cage change, a procedure known to block resetting in male hamsters. Preliminary results indicated that this procedure was ineffective in blocking female clock resetting. In the second experiment, we blocked the activity of females after a cage change either by locking their exercise wheels or by restricting them to a nest box. This experiment, a test of whether clock resetting without activity can induce an estrous delay, is currently underway. In the third experiment we asked whether Phenobarbital, an agent known to delay estrous also causes clock resetting. Animals treated with Phenobarbital (100 mg/kg) showed significantly greater resetting than controls. Additionally, as predicted, all Phenobarbital-treated animals showed an estrous delay and none of the control animals did. Furthermore, we found that the beta-adrenergic antagonist propranolol (20 mg/kg) blocked circadian resetting induced by Phenobarbital, but did not block the estrous delay. These results support the idea that circadian clock resetting associated with nonphotic stimulation is not required to induce an estrous delay.

**FIRE, ELK, AND ASPEN POPULATION DYNAMICS IN BANDELIER NATIONAL MONUMENT: RECOMMENDATIONS FOR POST-FIRE ASPEN SUSTAINABILITY.** Kevin Buffington, undergraduate student, with Paula Kleintjes Neff, faculty.

*George Wright Conference, Minneapolis, MN, 16-20 April 2007.*

The influence of browsing by elk (*Cervus elaphus*) on aspen (*Populus*

tremu tremuloides) and other woody shrubs in Bandelier National Monument has been a controversial topic throughout the last decade. Using two seasons of observational and statistical data we examined the hypothesis that physical barriers such as fallen trees help to protect aspen and other woody shrubs from ungulate browse. In 2005, we explored randomly selected sites in our search for refuged trees. In 2006, we traversed the entire study area searching for definitively refuged trees. Our findings suggest that refuges of fallen trees with a height greater than 80 cm allowed aspen to escape ungulate browse and attain heights above 2 m.

**PHENOTYPIC ANALYSIS OF THE MPBI NULL MUTANT STRAINS OF *CANDIDA ALBICANS*. Ryan Hietpas, Ann Rentschler and Michael Davey**, undergraduate students, with **Daniel Herman**, faculty.

*107th General Meeting for American Society for Microbiology, Toronto, Ontario, 21-25 May 2007.*

We have recently cloned the MBP1 gene of *Candida albicans*. A BLAST analysis revealed that the Mbp1 protein of *C. albicans* is 28% identical and 45% similar to the Mbp1 protein of the yeast *Saccharomyces cerevisiae*. The Mbp1 protein of *S. cerevisiae* is a known transcription factor, suggesting the homologous protein in *C. albicans* may also function in the same capacity. To begin elucidating the function of the Mbp1 protein in *C. albicans*, we have constructed MBP1 null mutant strains using the “URA-blaster” technique. The role of the Mbp1 protein in morphogenesis was determined by inoculating null mutant strains onto SLAD, 10% FBS, and M199 (pH 7.5) agars and comparing filamentation to MBP1 heterozygous and wild-type strains. While no difference in filamentation between the strains was observed when grown on 10% FBS or M199 agars, a significant difference was observed between the strains when grown on SLAD. The MBP1 heterozygous strains showed reduced levels of filamentation on SLAD compared to the wild-type strain, while the MBP1 null mutant strains exhibited little to no filamentation. These results suggest that the Mbp1 protein of *C. albicans* may function in regulating gene expression necessary for morphogenesis in response to nitrogen limiting growth conditions.

**PRELIMINARY EVIDENCE OF VEGETATION CHANGE AROUND LAKE MALAWI, AFRICA OVER THE LAST 1.5 MILLION YEARS.**

**Sarah J. Ivory** and **Ka Lor**, undergraduate students, with **Kristina R. Beuning**, faculty, and **Andrew Cohen**, University of Arizona, **Christopher A. Scholz**, Syracuse University, **Thomas Johnson**, University of Minnesota, **John King**, University of Rhode Island, **Steven L. Forman**, University of Illinois at Chicago, and **Lanny McHargue**, University of Arizona. *Geological Society of America Annual Meeting, Philadelphia, PA, 21-25 Oct. 2006.*

## *Biology*

Sediments recovered during the Lake Malawi scientific drilling preserve abundant plant micro- and macrofossils. Pollen is well-preserved and ubiquitous throughout the 1.5 million year sequence, and initial analyses of this pollen suggest the presence of past plant communities quite different from those surrounding the basin during the Holocene and Last Glacial Maximum (LGM). Most striking is the 20-30% of montane forest taxa grains (Podocarpus, Ericaceae, Hagenia spp., Asclepias spp. and Olea spp.) found in samples between 100 and 500 kyr BP as compared to the maximum montane percentages of 5% found during the Holocene and LGM. Pollen percentages of montane forest taxa, pteridophytes and sedges change consistently and in anti-phase with Poaceae, Evergreen forest taxa (Macaranga, Alchornea, Myrica, Celtis, and Faurea-type) and Moraceae. In addition to pollen, charred grass cuticle (greater than 150 micrometers in diameter) is present at select intervals within the sediment record. Ongoing carbon isotopic analyses of these cuticle fragments will augment the pollen results and provide additional insight into the nature and composition of the forest understory and open grassland plant communities. As additional data become available the results will be interpreted within the context of response to human and paleoclimatic forcing.

**REMOVAL OF SMALL WOODY DEBRIS AND EFFECTS ON SALMONID SPAWNING HABITAT.** Josh Dumke, undergraduate student, with David Lonzarich, faculty, and Dennis Pratt, Wisconsin Department of Natural Resources.

*Wisconsin Chapter of the American Fisheries Society, Dubuque, IA, 19-21 Jan. 2006.*

Logging of the late 19th and early 20th centuries has had an enduring impact on streams of Northern Wisconsin. In most streams of this region, spawning habitats are scarce because sand long ago eroded from barren landscapes remains accumulated in channels, covering much of the formerly abundant gravel substrate. Spawning habitat scarcity is recognized as an impediment to salmonid production in these streams; consequently, a focus of stream management has been to restore spawning habitat by creating conditions that promote the mobilization and removal of accumulated sand. In this paper, we present the findings of a study on habitat recovery associated with restoration efforts recently undertaken by the WI DNR. Our goal was to describe habitat conditions (e.g., velocity, substrate) prior to and at different times (one month, one and two years) following restoration in three streams. The streams selected were narrow, shallow and sandy bottomed. From each stream, reaches from 400-1200 meters in length were cleared of small debris, tag alders (*Alnus in cana*) and embedded beaver dams. Surveys conducted both pre- and post-restoration revealed that habitat work caused significant erosion of stream channel material and exposure of underlying gravel. These changes occurred rapidly

(8 weeks) and more importantly, appeared to be sustainable, at least in the short term. We suggest that the restoration methods employed in these streams are producing the desired changes in habitat.

**VEGETATION HISTORY OF LAKE MALAWI, SOUTH CENTRAL EAST AFRICA.** Sarah Ivory, undergraduate student, with Kristina Beuning, faculty.

*American Geophysical Union, San Francisco, CA, 3-6 Dec. 2005.*

## **BIOLOGY/CHEMISTRY**

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**NEW ORGANELLE-SELECTIVE NAPHTHALIMIDE PROBES.** Lori Scardino, Damon Campbell, Vinay Rao, undergraduate students, with Scott Hartsel and David Lewis, faculty, Chemistry, and Lloyd Turtinen, faculty, Biology.

*50th Annual Biophysical Society Meeting, Salt Lake City, UT, 18-22 Feb. 2006.*

We have developed a series of fluorescent probes based on the naphthalimide fluorophore which label a variety of intracellular structures and domains. They are bleach resistant, non-toxic, have a purple excitation, green emission, a very large Stokes' shift and are appropriate for epifluorescence, confocal, and two-photon microscopy. The probes are rapidly permeant being imaged in cultured cells after only 10-30 minutes of incubation. InstantLyso-labels acidic organelles including lysosomes and the trans-Golgi apparatus. InstantMito LMT -1,2 and 3 effectively label mitochondria and are relatively water soluble with very small cationic moieties~ InstantLipo Sep-1 is an especially interesting probe which labels cholesterol inclusions in cells with deranged cholesterol metabolism, colocalizes with CTxB labeled areas on the cell surface and with. expected high cholesterol and sphingolipid domains internally (e.g. microtubule organizing center and Golgi). We set out to assess the basis for the selective labelling by InstantLipo Sep-1. Solution fluorescence studies show a high sensitivity of emission maxima to environmental polarity as well as quenching in the presence of even small amounts of water. For example, in THF/water mixtures there was a long and short wavelength emission indicative of two excited states. The long wavelength emission was favored in water and polar environments while the blue-shifted state was favored in dry, non-polar environments. In the presence of different lipid vesicle membrane compositions, there were different relative contributions and intensities from these characterized by their infrared spectra, which are collected using p-polarized states. In canonical cholesterol/sphingolipid/PC "lipid-raft type" membrane compositions, there was a blue shift in emission which

## Chemistry

correlates well with the expected reduced water content in this suspected liquid-ordered domain relative to pure PC bilayers.

### CHEMISTRY

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**ETHYLENE ABSORPTION ON CRYSTALLINE AND AMORPHOUS WATER ICE.** **Matthew C. Hooper** and **Kirsten M. Strobush**, undergraduate students, with **James E. Boulter**, faculty.

*National American Chemical Society Conference, Chicago, IL, 25-29 March 2007.*

We present the results of laboratory investigations of ethylene absorption on amorphous and crystalline water ice films. Water films are grown on a cryostat-cooled, gold-plated copper mirror under high-vacuum at 60 K. They are subsequently annealed at temperatures ranging from 60 to 150 K and then an ethylene layer is deposited at 30 K. The interactions between ethylene and the water ice film change depending upon the thermal history of the water ice film and are characterized using thermal programmed desorption (TPD) analysis. To determine if adsorbed films are crystalline or amorphous, they are furthergrazing-angle Fourier-transform infrared reflection-absorption spectroscopy (FT-IRRAS) in the spectral range of 800-4800  $\text{cm}^{-1}$ . Absolute film thicknesses are determined using a laser interferometry technique.

**FLUORESCENT NAPHTHALIMIDE IMAGING AGENTS FOR MICROSCOPY.** **Robyn Laskowski** and **Andrew Wagner**, undergraduate students, with **David Lewis**, faculty.

*231st American Chemical Society National Meeting, Atlanta, GA, 26-30 March 2006.*

Naphthalimides are highly fluorescent compounds, with emission maxima near 500-550 nm, that have recently been exploited as imaging agents in live cells. The aminonaphthalimides, in particular, are useful imaging agents due to their large (typically close to 100 nm) Stokes shifts, and their resistance to photochemical bleaching. We have prepared a series of naphthalimide derivatives whose localization characteristics permit selective visualization of mitochondria, Golgi apparatus, lysosomes, and cholesterol rafts. In an effort to prepare imaging agents with more useful emission characteristics, we have been exploring the synthesis of new naphthalimide derivatives. Progress in the development of new agents will be discussed.

**HETEROATOMIC CORE SUPRAMOLECULAR LIQUID CRYSTALLINE POLYMERS.** David Witte and Paul Yanzer, undergraduate students, with Kurt Wiegel, faculty. *American Chemical Society National Meeting, Chicago, IL, 24-28 March 2007.*

A series of aromatic heterocycle-core pyridine-containing species have been synthesized. These heterocycles include but are not limited to oxadiazoles and pyrazoles. The pyridyl species will be used as hydrogen bond acceptors for the formation of supramolecular polymers. The rigid core of these species provides a defined shape that could induce liquid crystallinity in some of the polymeric samples. Complexes made using these systems and a series of bisacids have provided supramolecular polymer formation, but this far have failed to produce liquid crystalline characteristics measurable through either differential scanning calorimetry or thermal optical microscopy. The formation of two these heterocycles attached to flexible chains will also be synthesized and analyzed to determine if any mesogenic characteristics will be present.

**ISOLATION AND CHARACTERIZATION OF AZO DYE DEGRADING BACTERIA.** Cathy Pohl, undergraduate student, with Sasha Showsh, faculty.

*2006 Raper Symposium, Madison, WI, 31 August-1 September 2006.*

Increasing environmental concern about the appearance of color in wastewater generated from textile and paper companies has made the biotreatment of dyeing effluents increasingly attractive to the industry. Azo dyes are reactive effluents and are generally considered to be recalcitrant against biodegradation. Azo dyes are characterized by the presence of one or more azo groups (-N=N-). Current methods for removing azo dyes are physiochemical techniques, such as absorption, chemical oxidation, photodegradation, or membrane-filtration; they are all expensive and unfeasible.

**METALLOPORPHYRIN CATALYZED OXIDATION OF AMINE CONTAINING AZO DYES.** Frank Emmert and James W. Thomas, undergraduate students, with Alan Gengenbach, faculty.

*American Chemical Society National Meeting, San Francisco, CA, 10-14 Sept. 2006.*

Azo dyes are aromatic compounds that contain one or more azo (-N=N-) linkages and are widely used in the textile industry. Oxidative degradation presents a potential route for remediation that avoids the production of hazardous aromatic amines. Only a few studies of metalloporphyrin catalyzed oxidation of azo dyes exist and they have primarily focused on dyes containing alcohol substituents. We studied the catalytic oxidations of amine containing azo dyes.

## Chemistry

Our results show that dyes containing primary, secondary and tertiary amines are degraded in multi-step processes and that dyes containing primary amines are degraded faster than the analogous hydroxy substituted dyes. For certain dyes, the catalyzed and uncatalyzed reactions between dye and oxidant produce different products. We will present kinetic data along with UV-visible and GC-MS data for the intermediates and final products observed in these reactions.

**MOBILIZATION OF INSOLUBLE COPPER SALTS AND MINERALS BY METHANOBACTIN.** James Zook and Lee Behling, undergraduate students, with Scott Hartsel, faculty, and Alan Dispirito, Iowa State University. *Experimental Biology 2007, Washington, DC, 28 April-2 May 2007.*

Methanobactin (mb) is a chalkophore produced by *Methylosinus trichosporium* OB3b. It binds Cu(II) ions at a 1:1 stoichiometry very strong ( $K_d > 10^{-30}$  M) and many other ions with varying stoichiometries and affinities. It is produced in abundance under copper limiting conditions, and contributes to the activity of membrane-bound methane monooxygenase. Since *M. trichosporium* is widely distributed in the environment and is used in bioremediation of hydrocarbons, it was of interest to see if mb could contribute to mobilization of potentially toxic metals in the environment. In experiments using atomic absorption, UV/visible spectroscopy, and inductively coupled plasma mass spectrometry (ICP-MS) analysis, we find that mb can lead to a net extraction of Cu(II) from insoluble Cu(II)-containing substances including Cu(II)oxide and Cu(II)-containing minerals such as tetrahedrite and malachite.

**NAPHTHOIC ACID DERIVATIVES AS HYDROGEN BOND DONORS IN SUPRAMOLECULAR MATERIALS.** Justin Kumpfer and Paul Riedel, undergraduate students, with Kurt Wiegel, faculty. *231st American Chemical Society National Meeting, Atlanta, GA, 26-30 March 2006.*

A series of main-chain supramolecular liquid crystalline polymers constructed from 6-hydroxy-2-naphthoic acid have been synthesized and characterized. These associative chain structures have enantiotropic nematic and smectic phases. The materials were analyzed through differential scanning calorimetry and thermal optical microscopy. The clearing temperature of the complexes increased as the length of the rigid bispyridyls, and decreased as the length of the flexible chain increased. Additionally a series of supramolecular polymers were assembled using linear, non-rigid bis(thiopyridyls). These materials were non-mesogenic, but produced long, stable fibers when pulled from the isotropic melt. Molecular modeling calculations are ongoing to determine the effectiveness of the hydrogen bond as it related to electron density and HOMO energetics.

**NMR CHARACTERIZATION OF METHANOBACTIN IN METAL-BOUND AND METAL-FREE FORMS.** Lori Scardino, Vinay Rao, and Lee Behling, undergraduate students, with Scott Hartsel and Warren Gallagher, faculty, and Alan Dispirito, Iowa State University.

*Experimental Biology 2007, Washington, DC, 28 April-2 May 2007.*

Methanobactin (mb) is a chalkophore produced by *Methylosinus trichosporium* OB3b. This chromopeptide appears to be a part of the copper acquisition system of these methane-oxidizing bacteria. We have obtained detailed NMR spectra of mb after titration with Cu(II). This is only possible because mb reduces Cu(II) to Cu(I) upon binding and thus becomes diamagnetic as well as slightly less soluble. Cu(I) in solution is typically unstable; however, it remains stable in solution when bound to mb. We have not yet identified the specific reductant which is also capable of reducing Hg(II), Ag(I), and Au(III). Mb is thought to bind metal ions using nitrogen, sulfur, and possibly oxygen ligands from its 4-thiocarbonyl-5-hydroxy imidazole (THI), 4-hydroxy-5-thiocarbonyl imidazole (HTI), and possibly its tyrosine. Our experiments show that there are considerable changes in these residue environments denoted by significant changes in the proton NMR spectra of mb when it is bound to copper versus copper-free mb. Residue assignments have been made using COSY and TOCSY measurements. Protons on the nitrogens of HTI and THI have been identified using HSQC15N NMR.

**QUANTITATIVE ANALYSIS “LAB PROJECT” PROJECT.** Andrew Wagner, undergraduate student, with Robert Eierman, faculty.

*230th American Chemical Society National Meeting, Washington, D. C., 28 Aug.–1 Sep. 2005.*

The Quantitative Analysis Lab Project Project is an attempt to determine which student behaviors during a laboratory project help or hinder their performance on the project. At the end of each of two units, students were given a laboratory problem, which they solved in small groups, using the skills and knowledge that they had learned during the past unit. The students were then given two or three lab periods to solve the problem and the quantitative issues involved. The students were observed as they attempted to solve the problem to see how often they exhibited a series of selected behaviors. In addition, the notes students wrote during the projects were collected and students responded to a survey after each project, in which they answered questions about their behavior during the lab project. Performance was assessed by reviewing the student project lab reports. The data was analyzed to determine if there was a correlation between cooperative, planning and experiment execution behaviors and the ability of the students to successfully solve problems.

## **Chemistry**

**REACTIONS OF AMINE NUCLEOPHILES WITH NAPHTHALIMIDES AND NAPHTHALIC ANHYDRIDES.** Leah Groess, undergraduate student, with David Lewis, faculty.

*National Meeting of the American Chemical Society, Chicago, IL, 25-29 March 2007.*

The synthesis of highly fluorescent 4-amino-1,8-naphthalimides can be effected by two major methods: 1) Gabriel-type alkylation of 4-amino-1,8-naphthalimide, or 2) sequential imide formation and displacement of the activated halogen from 4-halo-1,8-naphthalic anhydride by suitable primary amine nucleophiles. In an effort to prepare a 4-alkylamino-1,8-naphthalimide carrying an N-(4-aminosulfonylphenyl) substituent, we heated 4-chloro-1,8-naphthalic anhydride with sulfanilamide. When the resultant 4-chloro-N-(4-aminosulfonylphenyl)-1,8-naphthalimide was treated with hexylamine, the product was not the expected 4-hexylamino compound, but the product in which the aminosulfonylphenyl and chloro substituents had both been replaced by the hexylamine. At lower temperatures, the product was 4-chloro-N-hexyl-1,8-naphthalimide. We have since prepared a series of N-(4-substituted)phenyl-4-chloro-1,8-naphthalimides and nitrated 4-chloro-1,8-naphthalic anhydrides, and we have studied their reactions with primary amine nucleophiles. The results of these studies will be presented.

**STEADY STATE AND KINETIC CD STUDIES OF METAL BINDING BY METHANOBACTIN.** Vinay Rao, Lori Scardino, Lee Behling, undergraduate students, with Scott Hartsel and Marcus McEllistrem, faculty, and Alan Dispirito, Iowa State University

*Experimental Biology 2007, Washington, DC, 28 April-2 May 2007.*

Methanobactin (mb) is a chalkophore produced by *Methylosinus trichosporium* OB3b. Mb has been shown to bind to many metals in addition to Cu(II) and Cu(I). There seem to be two general families of CD spectra associated with different types of metals. The first is common to soft metal ions and includes Au(III), Cu(II), Pb(II), Ag(I), and Hg(II). The second is common to hard metal ions and includes Zn(II), Mn(II), Co(II), and Ni(II). All metals can be displaced by Cu(II) except for Au(III), and Ag(I) which seem to inactivate mb, possibly irreversibly. This may be because mb is known to reduce Cu(II), Au(III), and Ag(I), and the oxidation of mb may impair subsequent metal binding. Alternatively, Pb(II) and all other metals on this list, can be displaced by Cu(II) suggesting that they cannot be reduced. Kinetic CD spectra of immediate and long-term changes in mb may be indicative of metal-reduction processes or changes in ligand binding and aggregation state. We find that most metals bind more rapidly than the dead time of the instrument (~10 msec) and lead to stable conformations, but Au(III) and Cu(II) show longer-term changes that may be associated with oxidation and/or alteration of mb ligands.

**NAPHTHALIMIDE GROUPS.** Ashley Dreis and Andrew Wagner, undergraduate students, with David Lewis, faculty.

*National Meeting of the American Chemical Society, Chicago, IL, 25-29 March 2007.*

4-Alkylamino-N-alkyl-1,8-naphthalimides are compounds that couple high fluorescence quantum yields and large Stokes shifts with low toxicity to living cells, resistance to bleaching, and resistance to quenching by paramagnetic transition metal ions or other paramagnetic species. This makes them attractive compounds for use in fluorescence microscopy. With a view to preparing more water-soluble fluorescent dyes that do not rely necessarily on charged groups for water solubility, we have begun the synthesis of dyes containing mono- and disaccharide units covalently bound to the naphthalimide group. The results of efforts to prepare the target aminonaphthalimide dyes by Williamson and Gabriel-type alkylations of halo derivatives of monosaccharides, by the Amadori rearrangement of saccharide iminium ions, and by olefin metathesis of saccharide allyl ethers will be presented.

**SYNTHESIS, STRUCTURES AND ETHYLENE OLIGOMERIZATION REACTIVITY OF LATE METAL COMPLEXES SUPPORTED BY TRIDENTATE IMINE-BASED LIGANDS.** Benjamin Schmeige, undergraduate student, with Scott Hartsel, faculty.

*American Chemical Society Fall National Meeting, Washington, DC, 28 Aug.-1 Sept. 2005.*

Transition metal catalysts are used commercially to produce billions of pounds per year of various polymers, including ethylene-based oligomers, polyethylene and polypropylene. In an attempt to model and improve upon commercial systems, discrete organometallic complexes incorporating various bi- and tridentate ligands have been explored as polymerization catalysts. In particular, late transition metal (Fe, Co, Ni, Pd) compounds incorporating pyridinebis(imine) or bis(imine) ligands have proven to be especially effective for producing a broad spectrum of products, ranging from oligomers to highly branched polymers. We have sought to expand the family of late metal catalysts by supporting these metals with tridentate, imine-based ligands that incorporate additional heteroatom (N, O, P, S) donors. Synthetic schemes have been developed for the ligands and for the resulting manganese(II), iron(II), and cobalt(II) complexes. Selected x-ray crystallographic, spectroscopic and magnetic susceptibility characterization data, as well as polymerization results will be presented.

## *Communication and Journalism*

### **TRIPLET EXCITED STATES OF CYCLIC ENONES CHARACTERIZED BY VIBRONICALLY RESOLVED LASER SPECTROSCOPY.**

**Laura Hoffelt and Mitchell Springer**, undergraduate students, with **Stephen Drucker**, faculty.

*National Meeting of the American Chemical Society, Chicago, IL, 24-29 March 2007.*

The cavity ringdown absorption spectrum of 2-cyclohexen-1-one vapor was recorded at room temperature. Approximately 25 very weak ( $\epsilon \approx 0.01 \text{ M}^{-1} \text{ cm}^{-1}$ ) vibronically resolved bands were detected in the 403-410 nm region. The vibronic bands are assigned to the  $T_2(n, \pi^*) \leftarrow S_0$  transition. The origin band is tentatively assigned at  $24,620(1) \text{ cm}^{-1}$ . The ring-inversion ( $\nu_{39}$ ) fundamental in the  $T_2(n, \pi^*)$  state is  $135 \text{ cm}^{-1}$ . This compares to values of  $99 \text{ cm}^{-1}$  and  $122 \text{ cm}^{-1}$  determined previously for the ground and  $S_1(n, \pi^*)$  excited states, respectively.

The  $T_1(n, \pi^*) \leftarrow S_0$  phosphorescence excitation spectrum of 4H-pyran-4-one vapor was recorded at  $50^\circ\text{C}$ . The origin band is located at  $27,291(1) \text{ cm}^{-1}$ . Attached to it are  $\Delta v=0$  sequences involving the lowest-frequency (out-of-plane) modes,  $\nu_{18}$  and  $\nu_{13}$ . The  $\nu_{18}$  fundamental frequency is  $122 \text{ cm}^{-1}$  in the  $T_1(n, \pi^*)$  state. This compares to values of  $149 \text{ cm}^{-1}$  and  $145 \text{ cm}^{-1}$  determined previously for the ground and  $S_1(n, \pi^*)$  excited states, respectively.

## **COMMUNICATION AND JOURNALISM**

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### **EXPERIMENTAL INDIVIDUAL EVENTS: DEVELOPING AND PERFORMING NEW OPTIONS.** **Amy Oldakowski**, undergraduate student, with **Karen Morris**, faculty.

*National Communication Association Convention, San Antonio, TX, 6 Sept. 2006.*

Advocating the use of experimental categories which extend the learning opportunities provided by the pantheon scheduled at tournaments, each panelist will examine one or more “new event” by: (1) developing event rules, (2) one sample of a performance text, (3) detailing the educational objectives that students who compete in the event, and (4) examining practical considerations involved in scheduling. Special feature: performance of the events by students attending NCA.

**COMMUNICATION SCIENCES AND DISORDERS**

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**ACOUSTIC ANALYSIS OF PRESSED VS RESONANT VOICE.** Kathleen Kuzma, Adam Slota, and Corinn Severson, undergraduate students, with Larry Solberg, faculty. *American Speech Language Hearing Association Convention, San Diego, CA, 18-20 Nov. 2005.*

The purpose was to determine whether the Soft Phonation Index (SPI) and the Voice Turbulence Index (VTI) measures differ in vowels produced with resonant vs. pressed voice and to determine whether formant frequencies associated with tongue position differ in vowels produced with resonant vs. pressed voice. Voice samples of 26 college-aged females with normal voices were recorded in a sound-treated booth and analyzed using the Computerized Speech Lab and the Multi-Dimensional Voice Program. Subjects were trained in simulating resonant and pressed voice with the syllable string mamamaaaaa. The data analysis revealed significant differences in the acoustic measures between the two voice conditions suggesting that during the production of a pressed or strained voice the vocal folds are more tightly adducted and the tongue is in a lower position in the mouth. The results also suggest that the acoustic measures of SPI, VTI, and first formant frequency may be useful to clinicians in documenting change in voice quality in patients with disordered voices.

**CHILDREN'S COMPREHENSION OF KINSHIP TERMS FOR BLENDED FAMILIES.** Adie Presto, undergraduate student, with Kristine Retherford, faculty. *American Speech-Language-Hearing Association Annual Convention, Miami, FL, 15-19 Nov. 2006.*

The purpose of this study was to explore children's comprehension of kinship terms relating to blended families. Specifically, this study examined when children acquire the following blended-family kinship terms: stepmother, stepfather, stepsister, stepbrother, stepdaughter, stepson, half-brother, and half-sister. Children, ages four to eight years, first were pretested on their knowledge of nuclear family kinship terms and then tested on their knowledge of blended family kinship terms. Results were examined to identify differences between children from nuclear families and children from blended families. Results are summarized by age and by family composition. Implications for understanding sociolinguistic change are discussed.

## *Communication Sciences and Disorders*

**LINGUISTIC FORMS CRITICAL FOR ACADEMIC SUCCESS IN PRESCHOOL-AGED HMONG CHILDREN.** Emily Axelson, Brittany Graves, and Ashley Gordon, undergraduate students, with Kristine Retherford, faculty.

*American Speech-Language-Hearing Association Convention, Miami, FL, 15-19 Nov. 2006.*

**PHONOLOGICAL AWARENESS AND PHONOLOGICAL ACQUISITION IN CHILDREN WITH COCHLEAR IMPLANTS: A PILOT STUDY.** Emily Axelson, Kathryn Borgmann, Rebecca Derrick, and Erin Ellis, undergraduate students, with Timothy Lippold, faculty. *National Conference for Undergraduate Research, San Rafael, CA, 11-15 April 2007.*

This study was designed to compare phonological acquisition and phonological awareness of prelingually deafened children with cochlear implants to normally developing age-mate peers. Twelve subjects were divided into a research and a comparison group. The research group consisted of six prelingually deafened children who received a cochlear implant prior to 18 months of age, and the comparison group consisted of six normally developing children. The subject groups were matched based on age (within 2 months) and gender. Subjects were tested using the Goldman-Fristoe Test of Articulation (2nd Edition) (GFTA -2) and the Phonological Awareness Test (PAT). The experimental group was tested at Northern Voices – An Oral School for the Deaf in Roseville, Minnesota. The comparison group was tested at the University of Wisconsin – Eau Claire’s Children Center in Eau Claire, Wisconsin. Each child’s productions were recorded using an Olympus, Model DS-330, digital voice recorder. Results of GFTA-2 were analyzed using the Khan-Lewis Phonological Analysis (2nd Edition) (KLPA-2). Data are currently being analyzed using descriptive and inferential statistics. It is anticipated that there will be differences in the scores of the two groups tested. However, because of the small sample size, if parametric statistics are inappropriate, non-parametric tests will be used. Although data are being analyzed, it is anticipated that there will be significant differences between the two subject groups. It was hypothesized that children with cochlear implants will show significant delays in both phonological awareness and phonological acquisition when compared to normally developing children. The goal of implanting a child with a cochlear implant is to approximate normal hearing. If a hearing loss is the child’s only disability, restoring hearing should, in turn, also result in normalized speech and language. If the hypothesis of this study is supported, children implanted with these devices do not reach the same levels of phonological acquisition and phonological awareness as their peers. Results of this study will indicate if and to what extent these children fall behind their peers, and also specific areas of concern. This will lead to a better understanding of primary areas to target in intervention.

**PRE- AND POST-TREATMENT IMITATION CHANGES IN CHILDREN WHO STUTTER.** Ashley Erickson, undergraduate student, with Lisa LaSalle, faculty.

*American Speech-Language Hearing Association Convention, Miami Beach, FL, 16-18 Nov. 2006.*

The Covert Repair Hypothesis suggests there is a temporal impairment in the phonological encoding skills and abilities of children who stutter. At Pre-treatment and again at post-treatment, seven children who stutter completed a storyline imitation task that tests five CVC encoding conditions - same rime, same coda, same onset, same onset+nucleus, and different CVC phonemes. Results showed that at Pre-treatment but not at Post-treatment, children stutter more in the different CVC (DCVC) than in the Same Rime (SR) condition.

**ROLES AND RESPONSIBILITIES REGARDING LITERACY: WHAT DO SLPs BELIEVE?** Rebecca Johnson, Chrissy Ross, Nicole Stangler, and Kelly Yaeger, undergraduate students, with Linda Carpenter, faculty.

*Wisconsin Speech-Language Pathology and Audiology Professional Association 2006 Annual Convention, Green Bay, WI, 27-29 April 2006.*

This study examined school-based SLPs' beliefs about their professional roles and their practices concerning literacy in kindergarten through grade 12. Subjects were 237 SLPs employed in Wisconsin public schools. Data were collected via a Web-based survey. Using a 5-point Likert scale, subjects indicated agreement with statements about their literacy roles and practices. Statements were drawn from ASHA guidelines documents. Mean ratings were calculated for each survey item and differences were determined in beliefs and practices as a function of years of experience, grade levels served, and case load size. Results will inform pre and in-service educational experiences for SLPs.

## CURRICULUM AND INSTRUCTION

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**ADVENTURE GIRLS: AN AFTER SCHOOL PROGRAM.** Hannah Jones and Anne Wilhelmy, undergraduate students, with Deb Pattee, faculty.

*Wisconsin Association of Middle Level Educators State Convention, Oconomowoc, WI, 26-27 April 2007.*

Are you interested in starting an after school program for girls? Come and see how university students and faculty started Adventure Girls for 5th grade girls. Leadership, self-esteem, and teaming were the focus of our eight week program. Girls participated in scuba diving, a ropes course, horseback

## *Economics*

riding, beading, yoga, hip-hop, etc. Community resources such as speakers and the YMCA facilities were utilized. Healthy snacks were provided to promote wellness; journaling was encouraged to promote emotional well being. We will also share the girls' reflections about the program.

**QUEEN BEES AND WANNABEES: GENDER EQUITY IN THE CLASSROOM.** Marie Gosse and Karsten Powell, undergraduate students, with Deb Pattee, faculty.

*Wisconsin Association of Middle Level Educators State Convention, Oconomowoc, WI, 26-27 April 2007.*

This presentation revolves around the world of boys and girls in middle level classrooms. Differences abound in the way that boys and girls learn, think, and socially interact with one another. The research examines these differences and offers insight into how best to embrace these differences in middle level education. Original research involved interviewing/observing middle level educators as well as three groups of sixth grade students. Findings will be presented along with up-to-date research regarding the psychology behind learning at the middle level. These findings are used to develop gender-conscious lessons that can be easily implemented into any middle school classroom.

## **ECONOMICS**

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**AN ANALYSIS OF INSTITUTION BUILDING AND INSTITUTION ENHANCING SPENDING AT THE UNIVERSITY OF WISCONSIN-EAU CLAIRE.** Aaron Olson, undergraduate student, with Thomas Kemp, faculty.  
*19th Meeting of the Wisconsin Economics Association, Stevens Point, WI, 20-21 Oct. 2006.*

Universities are of great societal importance because of the passing of knowledge from scholar to pupil. High expertise of fields would surely not be attainable if there were no such mechanisms to scribe, bequeath, and invent knowledge for posterity. As such, present society has deemed higher education a financial priority, relative to the past.

Because Universities take public funds, demands are reciprocated to them, such as graduation rates, and eventual economic provocation through a more educated populace. These demands cause a University to be operated like a business in a market of quasi-perfect competition. Universities spend much of this public money trying to differentiate their product, not by producing better scholarship, but by producing public good-will and the illusion of prestige. Veblen cites a similar theory in his book, "Higher Learning in America."

The author intends to examine the budget and financial practices of the University of Wisconsin- Eau Claire in order to determine the spending ratio of institution-building to institution-enforcing, or in other words, the ratio of spending for scholarship and spending for prestige. The critique is intended to scientifically qualify Veblen's observations and assumptions in a present-day University, and does not intend to provide a viewpoint regarding publicly-funded higher education.

The presentation will primarily outline Veblen's judgments in "Higher Learning in America," and will transcribe its meaning to today's sphere of higher education. The University of Wisconsin- Eau Claire's spending structure and budget will be exhibited, and subsequently classified between institution-building and institution-enforcing. Ultimately, Veblen's thesis will either be withered or strengthened by time.

**BELIEFS AND DEVELOPMENT OF THE THIRD WORLD.** Sarah Fisher, undergraduate student, with Thomas Kemp, faculty.

*19th Meeting of the Wisconsin Economics Association, Stevens Point, WI, 20-21 Oct. 2006.*

It is widely known that most of Africa is currently battling an intense economic depression. This paper attempts to pinpoint some of the continent's imbedded institutions as underlying causes of certain economic hindrances. Economic development and economic anthropology connect institutions within Africa to the region's current economic state. The paper briefly discusses the affects of certain traditions on agricultural productivity. Much of the region still practices shifting agriculture, or a "slash-and-burn" type of farming. This type of agriculture is not sufficient to sustain the growing population. The region's imbedded family structure contributes greatly to the rapid population growth. In order to demonstrate a family's wealth within a tribe, the man is encouraged to take on more wives and to produce as many children as possible. Because it ensured survival, children represented the greatest wealth for a family. Religious beliefs also inhibit economic surplus and growth. Many tribes follow religions that contain institutions that do not permit the exploitation of nature. Nature is divinized, thus it cannot be used to further the progress of man. The paper concludes by stating that in order for Africa to pull itself out of its economic rut, changes need to come from within the African society and the traditions it practices.

## *Economics/Psychology*

**CHOICE AND HABIT: TESTING DECISION MAKING USING EXPERIMENTATION.** David Carpenter, undergraduate student, with Thomas Kemp, faculty.

*19th Meeting of the Wisconsin Economics Association, Stevens Point, WI, 20-21 Oct. 2006.*

One of the hallmarks of orthodox economic thought is the notion of a purely rational economic agent. Decision making is assumed to occur on a conscious basis, within a cost-minimizing, utility-maximizing framework, which admittedly allows for much sophisticated mathematical analysis of human economic behavior. However, this same assumption of pure rationality does not necessarily mesh with either empirical evidence or lived experience involving human behavior. This paper will attempt to show that while the assumptions of pure rationality lend themselves well to the mathematical interpretation of economic events, they do not in fact lead to an uncontested theory of human choice. Drawing on the Institutionalist traditions in economic thought, including both Commons and Veblen, a case will be made for the importance of custom, habit, and irrationality in human decision making.

## **ECONOMICS/PSYCHOLOGY**

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**AN EVALUATION OF THE USDA FRESH FRUIT AND VEGETABLE PILOT PROGRAM IN WISCONSIN SCHOOLS.** Beth Lutz, undergraduate students, with Thomas Kemp and Eric Jamelske, faculty, Economics Department, and Lori Bica, faculty, Psychology Department.

*19th Meeting of the Wisconsin Economics Association, Stevens Point, WI, 20-21 Oct. 2006.*

The Centers for Disease Control and Prevention (CDC) advocates raising fruit and vegetable consumption as part of a well balanced and healthy eating plan in order to address the issues of overweight and obesity among children. In November 2005, Wisconsin was selected as one of six states to be added to the U.S. Department of Agriculture (USDA) Fresh Fruit and Vegetable Program. With this program, 25 Wisconsin schools will provide fresh fruit and vegetable snacks to students every day in combination with activities to promote fresh fruits and vegetables as a healthy alternative.

We are undertaking an evaluation of the USDA Fresh Fruit and Vegetable Program in Wisconsin. In particular, we will document the effectiveness of this program in increasing fruit and vegetable awareness and consumption among children. Paper and pencil surveys were administered to 4th, 7th, and 9th graders in March 2006 before the program began to provide baseline data.

These students were surveyed again in May or June 2006 and will be surveyed one last time in March 2007 as 5th, 8th and 10th graders providing data to assess the impact of the program relative to the baseline. These surveys are being conducted in the 25 program schools as well as 15 control schools for comparison.

Our baseline data suggests that we have some measurement error to deal with; however it appears that children consumed relatively few fruits and vegetables prior to the program. We are therefore encouraged that we will be able to identify a positive program effect as our research proceeds. The results of our analysis will ultimately be compiled into a report to the USDA and the U.S. Congress in support of securing future funding for this project in Wisconsin. We also seek to present at professional conferences and publish in refereed journals related to school health and nutrition.

## ENGLISH

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**BOOKS OVER BORDERS.** Daniel Hardy, S. Grant Tharaldson, and Traci Thomas-Card, graduate students, and Amanda Lonsdorf, undergraduate student, with Gloria Hochstein, faculty.

*Sigma Tau Delta 2006 International Conference, Portland, OR, 29 March–1 April 2006.*

Books over Borders is the book drive and fundraising campaign designed by the Theta Zeta Chapter of Sigma Tau Delta to send books to college and other adult students in other countries, including Nicaragua, Russia, and Indonesia. In addition to book sales and other fundraising methods, the Theta Zeta chapter hosts an annual benefit concert consisting of musical talent from the students and faculty from our department at the University of Wisconsin-Eau Claire. For this presentation, we shared the following information: (1) How to find a place/group in need of books, (2) Where to find books applicable to your needs, (3) Tips for general fundraising, (4) Tips for creating a benefit concert, and (5) Tips for getting the community involved.

**FOLK LINGUISTICS & SOUND CHANGE IN WISCONSIN.** James P. Hahn, undergraduate student, with Erica Benson, faculty.

*Midwest Modern Language Association Convention, Milwaukee, WI, 10-13 Nov. 2005.*

Wisconsin is currently at the crossroads of two major sound changes—the Low Back Vowel Merger (where cot and caught are pronounced the same) from the West and the Northern Cities Shift (vowel changes characteristic of Buffalo, Chicago, and more recently, Milwaukee) from the East. This study

## *English*

investigates the role that folk beliefs play in the spread of these sound changes into West Central Wisconsin, particularly Eau Claire. A series of interviews was conducted with 14 life-long residents of the Eau Claire area, and the respondents completed several tasks that revealed their opinions on how Eau Claire speech compares to the speech in other cities in and around Wisconsin. The information and opinions gathered from the interviews show that Eau Claire residents have a greater affinity for the speech in the Low Back Vowel Merger areas, for example Minneapolis, Mankato, and Dubuque, and less affinity for the speech in North Cities Shift areas like Chicago and Milwaukee. Thus, Eau Claire residents are more likely to adopt the Low Back Vowel Merger than the Northern Cities Shift in the future.

**FREE TO CHOOSE: RETURNING FROM THE GUILT TRIP.** Ann Brooks, undergraduate student, with Gloria Hochstein, faculty.

*2007 Sigma Tau Delta International Conference, Pittsburgh, PA, 29 March-1 April 2007.*

As women, we are socialized to respond to others' needs, for countless reasons and through years that are both rewarding and bone-wearying. We have, for the most part, positively impacted our children's lives, but in so doing, many of us have lost part of ourselves. We all have reasons, good or bad, and sometimes both, for finding ourselves in this midstage of life with no idea of what we want to be when we grow up.

What is important is not why we are in this predicament, but what we can do to claim our lives again, to realize a dream put on hold years ago but never forgotten. We yearn for the self-confidence to discover what we want now that we are, in a sense, free to be ourselves.

The article discusses how women can take charge of the second half of their lives and the opportunities afforded by the freedom an empty nest provides. After spending decades caring for others, women are often unsure of their own potential and capacity for change. My paper discusses the need to get to know who we are as individuals, rather than merely as wives, mothers and nurturers. It includes an interview with a woman, now in her late 70s, who followed a long-held dream to Africa after staying home for thirty-seven years to raise eight children on a farm in northern Wisconsin.

**HOMOEROTICISM AND GENDER IN THE VAMPIRE NOVEL AND THE REPRESSED HOMOSEXUAL DESIRE OF MODERN SOCIETY.**

William Verthein, undergraduate student, with Martin Wood, faculty.

*Vampires, Cannibals, and Other Horrific Creatures: Artistic and Political Monstrosities in Literature and Cinema, Wilmington, NC, 15-17 March 2007.*

From John Polidori's *The Vampyre* to Anne Rice's *Interview with the Vampire*, there was an evolution in the vampire monster, not only in what it means to be a vampire, but an evolution in a vampire's supposed sexuality and relationships with other people and vampires. Many people view these vampires as a vehicle for social commentary at the time the novels were written, as well as in current society. Some popular interpretations include commentary on capitalism, homophobia, the "traditional family," marriage, female sexuality, and the AIDS pandemic.

Polidori's *The Vampyre*, J. Sheridan LeFanu's *Carmilla*, Bram Stoker's *Dracula*, and Rice's *Interview with the Vampire* can all be examined for how they reflected society. These novels (and in some cases, the films that go with them) have been very popular in the general public. They all, especially *Carmilla* and *Interview with the Vampire*, contain homoerotic language. This homoerotic language serves as social commentary, and it seduces not only characters within the story, but the general audience as well due to repressed homosexual desire perpetuated by modern society.

**VERGING ON MERGING OR NIFTILY SHIFTING?: THE LOW VOWELS OF EAU CLAIRE, WI.** Jared Balkman, undergraduate student, with Erica Benson, faculty.

*New Ways of Analyzing Variation 35: Interdisciplinary Approaches to Language Variation, Columbus, OH, 9-12 Nov. 2006.*

Myriad recent studies of language variation and change in North America have examined the Northern Cities Shift and the Low Back Merger individually; however, few have examined what happens when these so-called "competing" sound changes meet. This pilot study seeks early signs of resolution to this dialect tension by investigating the behavior of the low vowels /æ, ɑ, ɔ̃/ in west-central Wisconsin.

An examination of these vowel changes in west-central Wisconsin is particularly interesting for several reasons: (1) The Northern Cities Shift – a chain shift primarily involving the lax (or short) vowels in English, with a locus in metropolitan areas on the Great Lakes e.g. Rochester and Chicago – is already found in the metropolitan areas of southern Wisconsin (Labov, Ash, & Boberg 2006). (2) The Low Back Merger – a sound change involving the loss in phonemic distinction between /ɑ, ɔ/, e.g. *cot~caught Don~Dawn*, found in New England, western Pennsylvania, the central Midwest, and nearly all areas west of the Mississippi River (e.g. Wetmore 1959; Labov, Ash, & Boberg 2006) – currently reigns in Minnesota and is believed to be moving eastward into Wisconsin. (3) With the exception of the Dictionary of American Regional English, west-central Wisconsin is largely unattended in dialect research, despite lying in a shrinking region bounded by the frontiers of both the Low Back Merger

## *Foreign Languages*

(moving eastward) and the Northern Cities Shift (spreading westward, with recently established presence in metropolitan areas of southeast Wisconsin). (4) Perhaps most importantly, the Inland North, defined by the Northern Cities Shift, is seen as an “area of resistance to the low back merger” (Labov, Ash, & Boberg, 2006: 121), suggesting that presence of the Northern Cities Shift precludes presence of the Low Back Merger. This leaves the question of which individual change will take hold in west-central Wisconsin, since their coexistence within a dialect is presumed impossible.

The respondents include 7 women and 6 men all lifelong residents of Eau Claire ranging in age from 18-85. Respondents took part in a sociolinguistic interview and read a reading passage and word list. From the word list data, 564 vowel tokens were analyzed using Akustyk/Praat for location in vowel space (F1-F2 measurements) as well as duration and relative spectral shape (cf. Majors 2005). Acoustic analysis showed no evidence of the Low Back Merger among older speakers, but some younger speakers are showing evidence of the merger. In fact, one young male speaker appeared to be fully merged, with /ɑ, ɔ/ utterances sounding more like the vowel in cot. Additionally, noticeable raising of /æ/ in /hVd/-/hVt/ environments across all speakers may be a sign of early Northern Cities Shift influence. Preliminary evidence suggests that both sound changes may be in their early stages in Eau Claire, potentially complicating accounts that the Northern Cities Shift serves as one of the ‘modes of resistance’ to the Low Back Merger (Labov, Ash, & Boberg 2006: 128). These intriguing patterns warrant further study of the speech and perceptions of west-central Wisconsin natives, for a better understanding of what may happen when competing phonological changes intersect.

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## FOREIGN LANGUAGES

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**CREATING USER-FRIENDLY RUBRICS FOR THE LANGUAGE CLASSROOM.** Erin Groene and Elizabeth Gitter, undergraduate students, and Stephanie Rippl, graduate student, with Kate Reynolds, faculty. *41st Annual International Teachers of English to Speakers of Other Languages (TESOL) Convention, Seattle, WA, 21-24 March 2007.*

The era of accountability caused by the implementation of NCLB, teachers are being held to a new level of responsibility for assessment and learner progress. Teachers in Wisconsin have been asked by the State Department of Public Instruction to utilize standards and performance assessments for monitoring the linguistic development of their ELLs. In other words, for compliance with NCLB, the State now requires language teachers and program administrators to demonstrate their learners’ success on the State’s content and language standards using performance assessment techniques. Many program adminis-

trators rely on standardized test (ST) measures to show their learners' success; however, STs have constraints that do not allow for insight into overall communicative competence or other learner outcomes (O'Malley & Pierce, 1996; Wiggins 1989, 1993). For this reason, teachers' knowledge of the implementation of performance assessments and the use of scoring rubrics is vital.

To begin, several samples of rubrics will be considered for the quality of their design. A brief discussion of holistic and analytic rubrics will be held. Then, this workshop will focus only on the practical tips for how teachers can design their own rubrics and implement these scoring rubrics to more accurately assess learners' development of language proficiency and content knowledge. This workshop will also discuss how to show significant inter-scoring reliability when multiple scorers are involved in the assessment process.

**DEMYSTIFYING THE ESL AS “GOOD” TEACHING MYTH.** Karen Correll, Cheri Uelman, Linda Caradori, and Michelle Olson, undergraduate students, with Kate Reynolds and Dale Gable, faculty.

*40th Annual International Teachers of English to Speakers of Other Languages (TESOL) Convention, Tampa Bay, FL, 15-18 March 2006.*

A research team compared the frequency and variety of instructional strategies typically employed by ESL and mainstream expert teachers. Findings spoke volumes on teachers' instructional modifications for ELLs that allow for enhanced teacher training of pre- and in-service mainstream teachers.

**EMPOWERING PARAPROFESSIONALS IN THE SECOND LANGUAGE CLASSROOM.** Carrie Brandt, undergraduate student, with Kate Reynolds, faculty.

*41st Annual International Teachers of English to Speakers of Other Languages (TESOL), Seattle, WA, 21-24 March 2007.*

Workshop Description (294 words): Paraprofessionals are one of the most valuable resources available to ESL/EFL and Bilingual Instructors. They offer the instructor assistance on a wide range of important activities in the language classroom, for instance, 1) translating forms and home language surveys, 2) working individually with students on specific topics/tutoring, 3) developing materials, 4) conducting a priori teaching, and 5) organizing and offering instruction and assessments, etc. However, challenges exist in roles and responsibilities as well as training. Paraprofessional educators are willingly providing help in the classroom for low pay and oftentimes without clearly knowing what is expected of them by the students and/or instructor. Anyone in that situation may feel insecure and/or unable to work at his/her maximum capacity.

This interactive workshop will address the expectations and roles of

## *Foreign Languages*

paraprofessional educators in supporting English Language Learners. Practical tips for translation/interpretation, tutoring, materials development, and instruction will be offered so as to maximize the paraprofessional educators' comfort and skills in the classroom. Strategies will be discussed for strengthening collaboration in classroom, school, and community. The workshop participants, paraprofessional educators who serve English language learners, their instructional collaborators and supervisors, are welcomed to participate in this communication and construction workshop to help enhance the communication and collaboration of your team.

### **EMPOWERING THE BILINGUAL EDUCATIONAL ASSISTANT.**

**Allison Briski**, undergraduate student, with **Kate Reynolds**, faculty.

*41st Annual International Teachers of English to Speakers of Other Languages (TESOL), Seattle, WA, 21-24 March 2007.*

This interactive workshop addresses the expectations and roles of paraprofessional educators in supporting English language learners. Practical tips for translation and interpretation, tutoring, materials development, and instruction are offered to maximize the paraprofessional educators' comfort and skills in the classroom. Paraprofessionals, teachers, and administrators are welcome to participate in this workshop to help enhance the communication and collaboration of your team.

### **ISSUES AND STRATEGIES FOR ADVOCACY IN TESOL.**

**Abigail Zimmer**, undergraduate student, with **Kate Reynolds**, faculty.

*41th Annual International Teachers of English to Speakers of Other Languages (TESOL), Seattle, WA, 21-24 March 2007.*

The role of advocacy within TESOL has grown substantially in recent years. At this session, a panel will present an overview of TESOL's advocacy activities, the major issues being addressed, along with resources and examples of advocacy at various levels.

### **K-12 ACTIVITIES TO GET SOMALIS ENGAGED.** **Lynn Emmons**, undergraduate student, with **Kate Reynolds**, faculty.

*40th Annual International Teachers of English to Speakers of Other Languages (TESOL) Convention, Tampa, FL, 14-18 March 2006.*

Best practices for K-16 Somali students are discussed: cultural aspects influencing educational choices; effective techniques, activities, and assessments; and strategies and suggestions for how other small rural districts can guide and advocate for English language learners.

**LINKING STUDENTS TO COMMUNITIES THROUGH SERVICE LEARNING.** Megan Allen, undergraduate student, and Bruno Santo, graduate student, with Beth Kozbial Ernst, faculty.

*41st Annual International Teachers of English to Speakers of Other Languages (TESOL), Seattle, WA, 20-24 March 2007.*

International students studying at universities often experience difficulties in finding opportunities to interact with the community off-campus. Many experience self-imposed language and cultural barriers that inhibit their full engagement in the larger community, and may often spend much of their out-of-class time with other native language speakers. Furthermore, many international students may be unfamiliar with service learning in their native countries. Many may not have ever volunteered in any context. Therefore, in order to remedy this situation, the presenters created a service learning project to get international students involved in their communities, to give them opportunities to learn about American society and service learning itself, and to decrease some of the language and cultural barriers that prevents students' involvement. In this poster session, the participants will provide a step-by-step explanation of how they created and implemented a service learning project for international students enrolled in an American university. They will also share their results of pre- and post-project surveys given to all participants in which they expressed what they learned about American society, what ways they improved their English, what they learned about people in the community, and whether they would like to volunteer in the future.

**THE PROCESS OF IDENTITY CREATION IN THE MEMOIRS OF ES-MERELDA SANTIAGO.** Lindsey Brandrup, undergraduate student, with Eva Santos-Phillips, faculty.

*Marquette University Women's Studies Award, Milwaukee, WI, 23-25 March 2005.*

With its recent popularity, the memoir has raised questions about the merit of memory writing as a genre. Despite its oftentimes over-critiqued and under-valued form, authors continue to challenge our notions of identity, history, and discourse by producing memoirs that are at once unique and universal. One such author is Esmeralda Santiago whose memoirs have engaged us in an extremely personal account of her trying and successful life. At the same time, her work resonates with the voices of hundreds of thousands of immigrants from Puerto Rico and other Caribbean nations who have endured similar hardships of economic and cultural survival. In examining her three memoirs to date, *When I Was Puerto Rican*, *Almost a Woman*, and *The Turkish Lover* one can witness not only the process of identity creation as it applies to Santiago but also the evolving consciousness of an entire culture forced into redefining

## *Foundations of Education*

their notions of identity. To do this, Santiago uses the memoir's space to subjectively consider the relationships whose impact on her definition of self is influential if not fatalistic; the most important relationship being the one she has with her mother. The memoir's role in viewing this relationship has to do with its subversive allotment of space to consider, view, and challenge the relationship subjectively without providing definitive results which become bastardized explanations of a volatile and convoluted relationship. In this way, Santiago makes the process of identity creation explicit and she creates a framework through which others may explore the process.

### **FOUNDATIONS OF EDUCATION**

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**LIGHTS, ACTION, RESEARCH: LEARNING ABOUT DIVERSITY THROUGH MEDIA PRODUCTION.** Jenna Birkrem and Megan Klaber, undergraduate students, with Cynthia Gray-Mash, faculty.

*Diversity Here and Now: Holistic and Sustainable Approaches to Multicultural Learning, Bloomington, MN, 18-19 Nov. 2005.*

Using visual anthropology methods to collect data from a community based site, the students developed short documentaries about an organization, individual, or social justice issue. In their presentation, they will review the methodology, learning outcomes, and key principles regarding media development as a dynamic teaching tool for understanding culture. Portions of the students' documentaries will be shown and students will give their perspectives on their individual projects and outcomes.

### **GEOGRAPHY AND ANTHROPOLOGY**

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**THE CHANGING FACE OF WISCONSIN DAIRY: CULTURE CHANGE & LOCAL LIVELIHOODS IN WESTERN WISCONSIN.** Lawrence Allan Hoffman, undergraduate student, with Paul Kaldjian, faculty.

*Association of American Geographers National Conference, San Francisco, CA, 17 April 2007.*

As Wisconsin's traditional family farms are challenged by an increasingly competitive national market, area dairy farmers are being forced to consider global realities. It has become common for dairy farmers to tap foreign labor resources in the face of disappearing local labor. As a result, Western Wisconsin's dairy sector is becoming evermore dependent upon a growing Latino work force. Realization of this dependency has led to the exploration and creation of innovative approaches, including novel cultural and social programs

aimed at facilitating relationships between Latino labor, dairy farmers, and local communities. As immigration debates rage, evidence suggests that, on a local scale, acknowledging the importance of migrant labor to the regional economy and building local/Latino relationships improves the viability of Western Wisconsin dairy farms and their communities as well as the working conditions and livelihood prospects of Latino dairy workers. Questions remain as to what changes to the traditional family farm and languishing state-wide milk production mean to the identity of Wisconsin as “Dairyland.”

**THE CHANGING VISIBILITY OF WISCONSIN’S QUEER COMMUNITIES.** Amy Ledin, undergraduate student, with Lisa Theo, faculty.

*Association of American Geographers Annual Meeting, San Francisco, CA, 16-22 April 2007.*

Previous research on Wisconsin’s Queer communities demonstrated a diffusion of Queer focused businesses and/or organizations from predominately mid-sized cities and large urban areas to rural regions and smaller towns. This project examines the current visibility of Wisconsin’s Queer-friendly businesses and/or organizations to determine if a similar spatial distribution currently exists. Data was collected on the type and location of businesses and/or organizations advertising in publications marketed towards Queer individuals such as: Damron’s Travel Guide, Gayellow Pages, Quest, and Instep. The number, type, and distribution of current Queer-friendly businesses and/or organizations are compared to similar data collected for the years 1979, 1985, 1990, 1995. November 7, 2006 the state of Wisconsin voted to enact a constitutional amendment that read “only a marriage between one man and one woman shall be valid or recognized as a marriage in this state and that a legal status identical or substantially similar to that of marriage for unmarried individuals shall not be valid or recognized in this state.” The amendment passed, and Wisconsin voting results for this amendment are compared to counties with Queer-friendly businesses.

**THE CULTURAL ATLAS OF WISCONSIN: A PROTOTYPE.** Kelly Marie Erickson, Ross Guida, Tyler Moe, and Derek Hagen, undergraduate students, with Tim Bawden, faculty.

*American Association of Geographers Annual Meeting, San Francisco, CA, 17-21 April 2007.*

This poster displays a sample of the work that has been done in an ongoing research effort to produce the Cultural Atlas of Wisconsin. The Cultural Map of Wisconsin, upon which the atlas is based, was published in 1996 by the University of Wisconsin Press and drew national attention and acclaim. In

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general, the map displays 1200 important cultural and historical places in the state with 400 descriptive text blocks and 800 icons identified in an accompanying booklet. The initial goal of the project was to produce a companion guide to the Cultural Map of Wisconsin, but in the summer of 2003 the University of Wisconsin Press agreed to publish it as a stand-alone cultural atlas. The Cultural Atlas includes more in-depth coverage of these places in addition to graphics, such as maps, tables, and historical photographs. The Atlas is organized into six individual chapters, representing six regions in the state: the Northwoods, the Driftless Area, the South Central region, the Eastern Ridges and Lowlands, the Southeast, and the Central Plains.

**ELECTRIC POWER GENERATION AND REDUCTION OF GREENHOUSE GAS EMISSIONS: ANTITHETICAL PARADIGMS OF FRANCE AND GERMANY.** Neil R. Trombly, undergraduate student, with Doug Faulkner, faculty.

*Association of American Geographers 2006 Annual Meeting, Chicago, IL, 7-11 March 2006.*

France and Germany are primary and commensurate influences within the 20-nation European electric power grid but follow antithetical strategies for energy independence and avoidance of greenhouse gasses from electric power generation. Whereas France is the world's most nuclear-powered nation and is committed to developing new classes of nuclear generating plants, both fission and fusion, Germany, although heavily dependent on nuclear-electric capacity, is committed to elimination of its nuclear park by 2020. Further, whereas Germany has sacrificed rural vistas and ridges to make windfarm electricity a primary national energy resource, France, despite considerable potential, has little windfarm generation and there is evidence of growing opposition to on-shore windfarm development due to eyesore burden as already demonstrated within Germany. Windfarm opponents point out their visual clash as a backdrop to ancient rural villages, nuclear opponents point out their unsightliness along once-natural shores and long-term waste problems. Critically current common ground between these competing technologies is that neither produces global warming greenhouse gasses. This study looks at physical and cultural factors underpinning this pronounced divide between immediate neighbors and is based, in part, upon direct observations, photography, and interviews by the author in Europe during November, 2005.

**EVIDENCE OF AN EXTREME PALEOFLOOD IN HONOKOA GULCH, HAWAII.** Casey Farrell, Jacob Henderson, Sarah Lynn Knabel, Michael Molnar, Mark Nelson, Derek Pirkel, James Strong, Britta Jean Suppes, undergraduate students, with Douglas Faulkner, faculty.

*Association of American Geographers 2006 Annual Meeting, Chicago, IL, 7-11 March 2006.*

Honokoa Gulch is a canyon carved by the ephemeral Keawewai Stream into the basalts of Kohala, an extinct volcano located at the northwest corner of the Big Island of Hawaii. Located on the arid leeward side of the volcano and characterized by a relatively deep, narrow cross-sectional form, the gulch provides an ideal setting for reconstructing the magnitudes of paleofloods from slackwater deposits. Approximately 1 km upstream from the mouth of the stream, we found numerous deposits of clastic sediment in alcoves in the gulch's basaltic walls at elevations around 12 meters above the channel bed. We interpreted these as flood deposits based on color and texture, as they were similar to the color and texture of recent vertical accretion deposits in alcoves near the gulch floor. We also found a small stick wedged into one of the alcoves, around which several stems of desiccated grass appeared to have been bent by flowing water. Using a total station, we surveyed the valley cross-section at this site and the elevations of the paleoflood deposits. Assuming these deposits to be high-water marks, we then used the Manning equation to calculate the peak discharge of the flood responsible for their emplacement. Based on our calculations, the magnitude of the flood was truly catastrophic: >120,000 cms from a drainage area of only 23.5 square kilometers. This exceeds the largest flood ever recorded in Hawaii by more than 40%. Such extreme floods are undoubtedly very rare, but their occurrence should nonetheless be considered possible.

**GEOMORPHIC ANALYSIS OF HISTORICAL SEDIMENTATION IN HALF MOON LAKE, EAU CLAIRE, WI. Craig Sternberg**, undergraduate student, with **Douglas Faulkner**, faculty.

*Association of American Geographers 2006 Annual Meeting, Chicago, IL, 7-11 March 2006.*

Half Moon Lake, an oxbow of the Chippewa River, was used as a log-holding pond for numerous sawmills during the latter 19th and early 20th centuries. The lake contains an unknown amount of phosphorus-rich organic sediment, such as bark from logs that were once stored in it and sawdust from mills that once operated along its shore. The lake today suffers from severe eutrophic conditions, due in large part to the cycling of phosphorus from this organic sediment. Plans by the city and state to rehabilitate the lake presently focus on ways to reduce phosphorus cycling from the lake bed into the water column, but for such efforts to be effective, the volume and distribution of organic sediment within the lake should be known. To this end, we conducted a detailed bathymetric survey of the lake and a noninvasive investigation of lake-bed sediments using ground penetrating radar (GPR). We discovered that the lake bottom is composed primarily of organic muck, though we also found it contains gravel

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and bark bars and the foundations of old buildings (and other building materials). Based on our initial GPR results, we determined that the thickness of organic sediment ranges from 0 to 2 meters, with possible buried logs occurring in places. These preliminary findings provide a basis for a more detailed future GPR survey, including vibracoring of lake-bed sediments both to confirm GPR results and to determine the composition of the sediments. This research will facilitate a focused response to the lake's eutrophic condition.

**GPR INVESTIGATION OF ARCHAEOLOGICAL DIGS: PRELIMINARY RESULTS FOR TEL YAVNE AND APOLLONIA, ISRAEL.** Eric Pascal, undergraduate student, with Harry Jol, faculty, Richard A. Freund, University of Hartford, Philip Reeder, University of South Florida, and Paul D. Bauman, WorleyParsons Komex.

*Association of American Geographers 2007 Annual Meeting, San Francisco, CA 17-21 April 2007.*

Geoarchaeological excavations are expensive and time-consuming endeavors. With geophysical tools, such as ground penetrating radar (GPR), archaeological digs can be made more effective and efficient by aiding in identifying locations that show unique subsurface anomalies which appear to be anthropogenic in nature. During the summer of 2006, GPR data were collected at Tel Yavne and Apollonia, Israel. Yavne, located about 20 kilometers south of Tel Aviv, has a history that goes back thousands of years. After the destruction of the temple in Jerusalem in 70 CE, Yavne served as a center of Jewish learning and has subsequently been the site of a Byzantine city, a Crusader castle and Arab villages. Apollonia, named for the Greek god Apollo, existed as a Mediterranean coastal village as early as the 6th Century BCE and was the site of a Crusader fortress. GPR grids were collected adjacent to present excavations at Tel Yavne (7.5m x 13m) and Apollonia (20m x 30m) using 225 MHz antennae. The radar signals penetrated to approximate depths of 1.0m at Tel Yavne and 1.2m at Apollonia and revealed interesting anomalies (archaeological features?) in the GPR images. Preliminary analysis of the GPR data has led to the interpretation of potential walls, collapsed walls, and/or pits in the subsurface. The analysis and interpretation of the collected geophysical data will be used by site archeologists to guide future excavations.

**GPR INVESTIGATION OF THE NUESTRA SENORA LA BLANCA CHURCH SITE, BURGOS, SPAIN: PRELIMINARY RESULTS.** Jenifer Bode, undergraduate student, with Harry Jol, faculty.

*Association of American Geographers 2006 Annual Meeting, Chicago, IL, 7-11 March 2006;*

*11th International Conference on Ground-Penetrating Radar, Columbus, OH, 19-21 June 2006.*

In northern Spain, the city of Burgos served as a center for Jewish life during the early and high Middle Ages. Historians have documented that there were two Jewish communities within Burgos: one on top of a hill near the Castillo de Burgos and a second at the bottom of the hill. To serve the upper Jewish community, a synagogue probably existed near the Castillo, but the only textual documentation suggests that the synagogue existed in the place where the Christian church known as Nuestra Senora la Blanca stood. A ground penetrating radar (GPR) survey was carried out to map the subsurface structures that may be associated with the remains of the Nuestra Senora la Blanca church and/or a Jewish synagogue. The data from 2-D profiles and 3-D cubes both reveal hyperbolic and mound-like reflection patterns, which are interpreted as former walls of the church. A continuous horizontal reflection pattern at approximately 1.0 – 1.5 m in depth (below which the signal is attenuated) is interpreted as the foundation of the church.

### **GPR IMAGING OF THE SUBSURFACE IN 3D: EXAMPLES FROM A COASTAL SITE (USA) AND AN ARCHAEOLOGICAL SITE (ISRAEL).**

**Holly J. Johnson** and **Jenifer Bode**, undergraduate students, with **Harry Jol**, faculty, **Curt D. Peterson**, Portland State University, and **Moshe Fischer**, Tel Aviv University.

*The Geological Society of America Annual Meeting, Philadelphia, PA, 22-25 Oct. 2006.*

To better understand coastal geomorphic sites as well as archaeological sites, ground penetrating radar (GPR) has become a popular and effective method for imaging the subsurface. GPR is based on the propagation of high frequency electromagnetic waves, which are emitted into the ground and are reflected back to the surface in response to differences in the properties of the sediment the waves travel through. Three-dimensional (3D) GPR datasets have been increasingly collected because their results significantly enhance the ability to view, analyze and interpret subsurface stratigraphy. The first site is along the coastline of the Pacific Northwest, USA and as a result of the subduction zone in the area, large earthquakes pose a significant threat. Coseismic subsidence associated with such earthquakes creates erosional scarps into beach face deposits. A GPR grid (225 MHz) was collected over one of these scarps north of Long Beach, WA. The prominent facies that was imaged in the 3D cube is the erosional scarp which was bounded by the associated progradational beach deposits. The 3D views aid in better understanding the extent of erosion due to coseismic subsidence and how the shoreline recovered as the coast rebounded. The second site, Yavne Yam, is in Israel and is an archeologically significant city, located south of Tel Aviv on the Mediterranean Sea. From the first century AD onward, Yavne Yam served as a sea port for the imperial city of Yavne, which is approximately 24 kilometers to the east. A dense GPR grid 6 was col-

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lected adjacent to present excavations with both 225 and 450 MHz antennae. Analyses of the GPR data reveal several linear subsurface anomalies that are interpreted as walls. The interpretation of the collected GPR data will be used by site archeologists to guide future excavations.

### **GROUND PENETRATING RADAR AND ELECTRICAL RESISTIVITY TOMOGRAPHY INVESTIGATION OF A COASTAL ARCHEOLOGICAL SITE: PRELIMINARY RESULTS FROM YAVNE YAM, ISRAEL.**

**Jenifer Bode**, undergraduate student, with **Harry Jol**, faculty.

*Association of American Geographers 2006 Annual Meeting, Chicago, IL, 7-11 March 2006.*

Archeological excavations are expensive and time-consuming endeavors. With geophysical tools, such as ground penetrating radar (GPR) and electrical resistivity tomography (ERT), archeological digs can be made more effective and efficient by aiding in identifying locations that show unique subsurface anomalies, which appear to be anthropogenic in nature. During the summer of 2005, GPR and ERT data were collected at Yavne Yam, Israel. This archeologically significant city, located south of Tel Aviv on the Mediterranean Sea, has a history that goes back thousands of years. A dense GPR grid (6 by 9 m) was collected adjacent to present excavations with both 225 and 450 MHz antennae. One ERT line, 40 meters long, was collected along a peninsula extending from the site to the Mediterranean Sea. Preliminary analysis of the GPR and ERT data reveals several interesting anomalies that are interpreted as walls. The interpretation of the collected geophysical data will be used by site archeologists to guide excavations in 2006.

### **GROUND PENETRATING RADAR INVESTIGATIONS OF THE TAHQUAMENON RIVER BASIN, MICHIGAN: PRELIMINARY RESULTS.** **Theresa Lenon**, **Michael Molnar**, and **Susan Johnson**, undergraduate students, with **Harry Jol**, faculty, and **Walter Loope**, U.S. Geological Survey, **Henry Loope** and **T.G. Fisher**, University of Toledo.

*Association of American Geographers 2006 Annual Meeting, Chicago, IL, 7-11 March 2006.*

The Tahquamenon River is fed by a large watershed and courses east and north through eastern Upper Michigan to Lake Superior. The Tahquamenon displays several anomalous characteristics: 1) configuration of the main stem north of Danaher suggests drainage to the Manistique River and Lake Michigan; 2) from source to mouth (110 km), the river drops less than 20 meters; 3) south of Betsy Lake, the northward trending drainage is diverted 90 degrees to the east, leaves its entrenched valley and cuts through higher topography. Taken together, these characteristics beg questions with regard to the River's history:

1) how did deglaciation and former stands of Lake Algonquin influence local topography; 2) how did the destruction of Lake Minong influence drainage of the proto- Tahquamenon?; 3) does the present course of the Betsy River approximate the former course of the proto-Tahquamenon? Ground penetrating radar (GPR), a geophysical technique, was extensively used to investigate the subsurface stratigraphy of the landforms in the study area. Topographically corrected GPR lines were collected along Highway 123 (4.0 km), County Highway 407 (4.5 km) and Big Tree Road (3.5 km). A 100 MHz pulseEKKO 100 GPR system was used for data collection. The profiles were processed, plotted, and preliminary interpretations show buried channels, coastal deposits, aeolian bedding, and glacial outwash. While the modern Tahquamenon River basin may be the product of an unusual array of events, investigation of its history can demonstrate an interaction of geomorphic processes that may be mirrored elsewhere along the Upper Great Lakes.

**HOOP DREAMS: THE GEOGRAPHY OF FANS OF THE NBA.** Bryan Frenz, undergraduate student, with Timothy Bawden, faculty.  
*Association of American Geographers 2006 Annual Meeting, Chicago, IL, 7-11 March 2006.*

Geographers have studied patterns in sports for over three decades, largely beginning with John Rooney's 1969 pioneering article "Up from the mines and out from the prairies: Some geographical implications of football in the United States." Rooney argued at the time, that "fan loyalties are probably among the strongest of human attachments, and their regional boundaries are well documented and functionally organized via major sports radio and television networks." Since that time, media technology and professional sports in general have been dramatically transformed, which, in turn, has likely had an impact on the regional boundaries of the fan base of professional teams. This poster examines geographic patterns associated with the fan base of teams National Basketball Association in North America. In particular, we first explore the spatial patterns of fan bases. Second, we create an index to measure the geographic and numeric strength of each team. Third, we examine the relationship between this index and other independent variables that we believe most contribute to its variation between teams. Finally, we attempt to determine whether there are differences between the sports fan for whom basketball is their favorite sport and those who have another favorite sport. Our data set comes from a 2002 online ESPN survey in which 40,000 respondents were asked a variety of sports related questions including their favorite teams. The data were collected at the zip code level, allowing for fine scale analysis, and transferred to a GIS for further spatial analysis.

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**IMAGING TSUNAMI DEPOSITS IN OREGON (USA) USING GROUND PENETRATING RADAR.** Holly Johnson, undergraduate student, with Harry Jol, faculty, and Curt D. Peterson, Portland State University.

*Association of American Geographers 2007 Annual Meeting, San Francisco, CA, 17-21 April 2007.*

To better understand tsunami processes associated with Cascadia subduction zone earthquakes, ground penetrating radar (GPR) transects were collected. Multiple mega-earthquakes, which often create tsunamis, have occurred in the Pacific Northwest of the USA and with increased population in the region, these multiple hazards pose a significant threat to the coastal communities. GPR, a geophysical tool used to image the subsurface, was used at numerous sites to investigate the extent of paleo-tsunami inundation and the magnitude of wave run-up. Six GPR transects were collected in Cannon Beach, OR using 100, 225, and 450 MHz antennae while 14 transects were collected in Seaside, OR using 225, 450, and 900 MHz antennae. These transects ranged from 10 to 690 meters in length and depth of penetration ranged from 0.5 to 10 meters. Laser leveling surveys were carried out to gather topographic data which was used to topographically correct the GPR transects. Both the 1964 (Alaska earthquake) tsunami and the 1700 A.D. Cascadia tsunami were imaged in the project. Both of these tsunamis left extensive sand sheets on the investigated landscape. The internal stratigraphy of the 1964 tsunami deposits was imaged, showing horizontal to sub-horizontal stratification near or on the surface and the 1700 A.D. tsunami deposits, which lie beneath peat and marsh deposits, were imaged. In addition, tsunami pour over fans from the 1700 A.D. tsunami were also mapped.

**INVESTIGATION OF COASTAL EROSION ALONG HAPUNA BEACH, HAWAII.** Kin Yan Wong, Jenifer J. Bode, Courtney L. Daniels, Nathan L. Graham, Linda R. Hurd, Susan R. Johnson, Rodney V. Kouba, Theresa M. Lenon, Leah S. Nicol, Matthew M. Nier, Michael J. Schwartz, Jordan H. Spina, and Craig G. Sternberg, undergraduate students, with Harry M. Jol and Douglas J. Faulkner, faculty.

*Association of American Geographers 2006 Annual Meeting, Chicago, IL, 7-11 March 2006.*

Hapuna Beach is one of the more pristine and heavily visited beaches on the northwestern shore of the Big Island, Hawaii. Within close proximity are several large resorts that rely on Hapuna Beach to bring tourists to the area. In recent years, beach erosion has become a major concern. In October 2005, several surveys were conducted including ground penetrating radar (GPR), laser leveling, global positioning system (GPS), and vegetation analysis. GPR uses high frequency electromagnetic waves to view subsurface stratigraphy. Near

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the beach/water interface the depth of penetration with both the 225 and 450 MHz antennae was hindered due to salt water intrusion, however further inland we were able image the coastal beach deposits to several meters due to fresh water input from local streams/groundwater. Laser leveling was used to record 7 beach profiles along the width of the beach as well as provide topographic correction for the GPR surveys. The beach profiles varied from south to north with changes in elevation along the profiles of up to 1.7 meters. GPS was used to map the following features: the entire beach deposit, coastline, areas affected by ephemeral stream erosion, locations of the vegetation study, beach profile lines and GPR surveys. Finally, vegetation analysis was conducted on the dune complex along the south end of the beach. Three species were identified and their frequency of occurrence and estimation of groundcover were collected. The results from this integrative study will aid in better understanding the erosional problems at Hapuna Beach.

### **LATINO LABOR AIDS WESTERN WISCONSIN DAIRY SECTOR.**

**Lawrence Hoffman**, undergraduate student, with **Paul Kaldjian**, faculty.

*57th Meeting of the West Lakes Association of American Geographers, Iowa City, IA, 3-5 Nov. 2005.*

Wisconsin's dairy sector must be innovative to remain viable in a competitive national market. As herd sizes grow, dairy farmers have turned to Latino migrants for dependable labor. This research explores the impacts of hiring Latino labor on dairy farms in Western Wisconsin.

### **LATINO MIGRATION TO ST. PAUL, MINNESOTA: 1980-2000.**

**Serena Davis**, undergraduate student, with **Tim Bawden**, faculty.

*Association of American Geographers 2006 Annual Meeting, Chicago, IL, 7-11 March 2006.*

In recent decades, the population of the Hispanic community has increased rapidly in Minnesota, a mirror of the United States overall. Newspaper and other media coverage of this phenomenon fail to explain why this growth is happening. In general, our research examines the migration of Latinos to St. Paul, Minnesota between 1980 and 2000. In particular, this poster will illustrate the patterns of the Latino population and its growth during this period in St. Paul and where they are migrating from. Finally, summaries of interviews obtained from residents and business owners lend further descriptions of the Latino community and culture in this Upper Midwest city.

### **OBESITY TRENDS IN THE US: A STATE COMPARISON.**

**Rachel A. Kjos**, undergraduate student, with **Lisa Theo**, faculty.

*Association of American Geographers Annual Meeting, San Francisco, CA, 17-21 April 2007.*

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Concerns with obesity have plagued America for the past decade. Obesity is often seen as a national problem, which it is, however tools to overcome obesity are mostly played out at the state level. In order to better understand obesity and how to mitigate its affects we must first understand what state programs are working to overcome obesity and what environmental factors play a role in contributing to an obese nation. This study will look at Obesity: by Body Mass Index for the United States and DC. Data was collected from the Center for Disease Control and Prevention: Behavioral Risk Factor Surveillance System for the years 1990-2002; both Nationwide and individual state data were used for comparison. Individual states were weighed against national values to analyze which states fell above and below national trends. Focus was given to anomalies that fell high above or below national trends. A comparison was made between different age brackets, allowing us to better see the spatial differences for each age range throughout the United States. Again, particular attention was paid to states that highly differed from national trends, to see how certain age ranges impacted the deviation from the national trend.

**POST-GLACIAL HISTORY OF THE LOWER CHIPPEWA RIVER VALLEY, WESTERN WISCONSIN: A PROGRESS REPORT.** David Speer and Phillip Herman Larson, undergraduate students, with Harry Jol, Douglas Faulkner, and Garry Running, faculty.

*Association of American Geographers 2007 Annual Meeting, San Francisco, CA, 17-22 April 2007.*

A complex sequence of stream terraces has long been recognized along the lower Chippewa River valley but these landforms remain poorly understood. The purpose of this project is to provide a map of the stream terraces along the Chippewa River valley from Eau Claire, WI downstream to its confluence with the Mississippi River as a first step in a broader investigation of the post-glacial history of the Chippewa River valley. Interpretation of aerial photographs, topographic maps, and digital elevation models (DEMs) were used to identify stream terraces within the study reach. Terraces were then mapped using ArcGIS software. Seven terraces were identified and mapped. The Wisconsin terrace (graded to the Chippewa terminal moraine), the highest, most prominent, and most extensive of them is preserved across the entire study reach. The remaining terraces are inset below the Wisconsin terrace. The lowest two terraces are only a few meters above the modern flood plain. Higher terraces generally exhibit lower relief except for the Wisconsin terrace where large (up to 10m high and 200m long) parabolic dunes are present locally. Lower terraces exhibit higher relief. Point bars and abandoned channels are usually readily apparent on the lowest terraces and the modern floodplain. Preliminary ground penetrating radar investigations and coring of several terraces in the study reach have yielded subsurface data suitable for sedimentological and stratigraphic

analysis and samples suitable for optical stimulated luminescence dating. Future investigations will focus on determining terrace ages and sedimentological characteristics, and stratigraphic relationships among these terraces.

**SCHOOL DISTRICT CONSOLIDATIONS AND COMMUNITY DECLINE: LESSONS FOR WISCONSIN.** Lynn R. Hilgendorf and Amy Ledin, undergraduate students, with Lisa Theo, faculty.

*Association of American Geographers 2006 Annual Meeting, Chicago, IL, 7-11 March 2006.*

Economic restructuring in Wisconsin's Northwoods during the past 80 years has led to significant school district consolidations. These consolidations have contributed to a decline in community identity and a change in social structure. Researchers examined the continuing effect of school district consolidations on demographic structure in an effort to determine which variables were the cause and which were the effect. Demographic data was acquired from the United States Bureau of the Census, and information on school enrollment and school district consolidations was supplied by the Wisconsin Department of Public Instruction, while other information was from articles by the Wisconsin Historical Society. Data analysis and spatial analysis were conducted using statistical software and Geographic Information Systems (GIS). Demographic data were collected and analyzed in Microsoft Excel and spatial data were collected and analyzed in ESRI's ArcGIS.

**THREE DIMENSIONAL VISUALIZATION AND ANALYSIS OF AN EOLIAN DUNE.** Shana Neumann, undergraduate student, with Harry Jol, faculty.

*National Conference for Undergraduate Research, San Francisco, CA, 17-21 April 2007.*

Three-dimensional (3-D) ground penetrating radar (GPR) imaging can be utilized to understand the internal stratigraphy of eolian sand dunes. The 3D software allows for slices to be made in a data cube that can aid in showing continuity of reflection patterns, as well as visualizing the internal stratigraphy from any perspective. Because the internal layering of an eolian sand dune is often exposed through coring or digging of trenches, GPR data collection can be beneficial since it allows the data to be collected in a non-invasive, non-destructive manner. A 3D grid was collected from a quartz arenite dune complex within the Early Jurassic Navajo Sandstone located in the Checkerboard Mesa area of Zion National Park, Utah. Using a pulseEKKO 1000 GPR system with an antenna frequency of 225 MHz, a 4 x 10m grid was collected. Data was plotted and processed using pulseEKKO software. A 3D cube was created using T3D which allowed for the deposition framework of stratigraphic units of

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interest to be visualized and interpreted. The findings showed a continuous, horizontal reflection at 90 ns (5m) and 200 ns (10.5m). The data also showed that the upper set of dipping reflections was inclined at an angle of 13-15° and the underlying dipping reflections were at an angle of 18-20°. Interpretations of the 3D cube suggest the inclined reflections are dune forests and the horizontal reflections are erosional truncations formed by dune migration. Based on the 3D interpretations one can provide information on dune size, shape, and migratory patterns.

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**DUNES, FORESTS, AND PEOPLE DURING THE LATE-HOLOCENE: EVIDENCE FROM BURIED PODZOLIC SOILS IN THE CREPEELE DUNE FIELD, SOUTHWESTERN MANITOBA.** Mark C. Nelson and Ashley Wong, undergraduate students, with Garry L. Running, faculty, Geography and Anthropology, and Karen G. Havholm, faculty, Geology. *Association of American Geographers 2006 Annual Meeting, Chicago, IL, 7-11 March 2006.*

The Crepeele Dune Field (CDF) is one of 18 late-Holocene dune fields in the Glacial Lake Hind Basin. Previous research has shown that such dune fields are characterized by comparatively greater geomorphic and ecological complexity and were, therefore, important loci of pre-contact human activity. Buried soil profiles with weak podzolic morphology were also observed within the CDF. The purpose of the research reported in this paper is to determine the distribution of these buried podzolic soils and to characterize the spatial relationship between them and archaeological material. Soil profiles were described and sampled from the walls of 12 archaeological excavation units. These locations were mapped. A total station was used to create a topographic map of the area around the units. Soil, archaeological, and topographic data were then combined in a GIS for analysis (ArcMap and ArcView). Based on preliminary analysis, buried podzolic soils are widely observed in intermediate-elevation positions on dunes. Drainage on dunes permits podzolization to occur but dune crests are subject to frequent erosion so podzolic morphology is not preserved in high landscape positions. Evidence for past human activity follows the same spatial pattern. The presence of buried podzolic soil profiles strongly suggests the forest communities that dominate the CDF today were present throughout the late-Holocene and that forest-related resources were an important factor in attracting humans to the CDF. However, more soil data collected from a wider range of slope positions and slope aspects across the CDF is needed before our model can be accepted.

**POST-GLACIAL STRATIGRAPHY, EOLIAN ACTIVITY, AND PALEOENVIRONMENT: A VIEW FROM THE ATKINSON SITE, GLACIAL LAKE HIND BASIN, SOUTHWESTERN MANITOBA, CANADA.** **Jacqueline Chamber**, and **Anne Gauer**, undergraduate students, with **Garry Running**, faculty, Geography and Anthropology, and **Karen Havholm**, faculty, Geology.

*Association of American Geographers 2007 Annual Meeting, San Francisco, CA, 17-22 April 2007.*

The Atkinson site, located in the Lauder Sand Hills, glacial Lake Hind Basin, SW Manitoba is an important multi-component archaeological site. Previous geoarchaeological research along the 850 m-long cutback exposure of the Souris River adjacent to the site, ongoing since 2002, has revealed an eolian and fluvial post-glacial stratigraphic sequence (geomorphic units A-E). Recent flooding followed by low water levels in the Souris River revealed fresh exposures. This made it possible to address remaining questions about the contacts between units, the number of dune depositional episodes, and dune migration directions. Thirty-one stratigraphic profiles were described and added to the data base. Geomorphic units were traced across the exposure and mapped using a total station, correlated with profiles described in previous years, and the existing topographic site map was expanded by ~ 15,000 m<sup>2</sup> using a total station. Additional sand samples of eolian units (B-E) were collected and analyzed for particle-size distribution (sonic sifter, half-phi interval) and 37 new cross-strata measurements from unit B were added to the data base. Our results confirm: mid-Holocene dune unit B conformably overlies unit A2 but welds with unit C, and both units C and B pinch out downstream near the archaeological excavation block; units D, E, and A2 extend across the entire exposure, units D and E represents four distinct episodes of late Holocene dune activity (dune migration from the northwest), the mid-Holocene unit B dune migrated from the west, and grain populations from eolian units (B, C, D and E) are distinguishable statistically.

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**CHARACTERIZING SOIL TEXTURE USING GEOSTATISTICAL METHODS WITH GEOPHYSICAL DATA.** **Cale Anger**, undergraduate student, with **Katherine Grote**, faculty.

*North Central Section Geological Society of America Meeting, Akron, OH, 19-21 April 2006. Abstracts with Programs 38.4 (2006): 65.*

Many agricultural, environmental, and engineering activities require

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accurate characterization of soil texture over large areas. While point measurements of soil texture are relatively easy to obtain, natural environments often have heterogeneous soil textures, so acquiring enough point measurements to accurately characterize large areas is usually prohibitively expensive. If soil texture is inadequately characterized, inefficient land management or engineering practices may result. Geophysical data have potential to improve soil texture characterization, and these data can be collected very quickly and with high resolution over large areas. However, no geophysical technique is currently capable of independently and non-ambiguously identifying different soil textures. This project investigates the potential of geostatistical analysis of large geophysical data sets and sparse point measurements of soil texture to improve soil texture estimation. For this investigation, ground penetrating radar groundwaves were used to generate high-resolution grids of near-surface soil water content and groundwave amplitude over a heterogeneous field site. Point measurements of soil texture were also collected across the site. Variograms and cross-variograms were calculated for the soil texture and water content, generating maps of soil texture using kriging of the soil texture measurements and co-kriging of soil texture and geophysical data. Cross-validation was performed for each estimated soil texture distribution to determine the error in the kriged estimates, and geophysical data were found to significantly improve the accuracy of soil texture estimation. Then, the relationships between the statistical moments of the geophysical data and the soil texture measurements were investigated to determine whether geophysical data could reasonably indicate soil texture without any point measurements. This investigation showed that point measurements of soil texture are necessary for very accurate soil texture estimation, but statistical analysis of geophysical data can indicate the soil texture distribution even without soil texture measurements.

**DEFINING FLOW PATTERNS: PALEOMAGNETIC CHARACTERISTICS OF THE WISSOTA DIKE.** Ryan Bartingale, undergraduate student, with Colin Shaw, faculty.

*Institute on Lake Superior Geology, Sault Ste. Marie, Ontario, Canada, 8-10 May 2006*

. We analyzed a gabbro dike intruding Precambrian granite below the Lake Wissota Dam in western Wisconsin. Data consisted of alternating field demagnetization and anisotropy of magnetic susceptibility measurements (AMS). Chan and Meyers (1991) interpreted previous results as consistent with a Keweenawan age (1.1 Ga) for the dike. However, research done by Macouin et al. (2003) show similar dikes in the upper midwest and above Lake Superior have been reinterpreted to be related to the 2.07 Ga Kenora-Kabetogama Dike swarm based on moderately SE-plunging paleomagnetic directions. This study

was designed to test the age interpretation of the Wissota dike and magma flow patterns.

AMS data taken with respect to the major mineral axis indicates a north-east trending, horizontal flow pattern within 4 meters of the north contact and vertical flow in the center. This suggests the concentrations of feldspar phenocrysts on the northern contact were formed near the present level, possibly being fed by the vertical flowing magma. The poles have strong correlation in the center, but weaken within 4 meters of the contact. When fit to a girdle, many samples show a strong foliation. Paleomagnetic poles in several gabbro sites have a characteristic remnant magnetization plunging between  $28^{\circ}$  and  $289^{\circ}$  in a WNW direction. Samples have an N-directed overprint we interpret as recent, and record one episode of magnetism. Plotted on an apparent polar wander path for North America, the poles plot near  $24^{\circ}$  north and  $176^{\circ}$  west, which is consistent with ages of approximately 1.1 Ga. We conclude that the Wissota dike is probably Keeweenawan in age.

**DEPOSITIONAL ENVIRONMENTS OF THE MISSISSIPPIAN (CHESTERIAN) LOYALHANNA MEMBER OF THE MAUCH CHUNK FORMATION AT THE KEYSTONE QUARRY IN SOUTHWESTERN PENNSYLVANIA.** Gillian Krezoski, undergraduate student, with Karen Havholm, faculty, and Christopher Swezey, U.S. Geological Society.

*Geological Society of America, Salt Lake City, UT, 16-19 Oct. 2005. Abstracts with Programs 37.7 (2005): 299.*

The Mississippian (Chesterian) Loyalhanna Member of the Mauch Chunk Formation in Pennsylvania, and the equivalent Loyalhanna Limestone Member of the Greenbrier Formation in western Maryland, have been interpreted by various workers as either marine or eolian deposits. At the Keystone Quarry in southwestern Pennsylvania (near the town of Springs), the Loyalhanna Member is a 15 meter thick carbonate-cemented quartzose sandstone that overlies the Mississippian Burgoon Sandstone and is overlain by the Mississippian Deer Valley Limestone Member of the Mauch Chunk Formation. At this quarry, the Loyalhanna Member consists of the following four facies: (1) a medium- to fine-grained sandstone with mm-scale discontinuous laminations interspersed with cm-scale layers and lenses of coarse- to medium-grained sandstone; (2) a coarse- to fine-grained sandstone with alternating packages of mm-scale low-angle laminations (some of which coarsen upwards) and cm-scale high-angle cross-strata that downlap onto the low-angle laminations; (3) a 30-50 cm thick poorly sorted coarse- to fine-grained sandstone with zones of carbonate-coated grains, nodules with carbonate cement, and some more continuous carbonate horizons containing a few matrix-supported grains of quartz sand; (4) a basal coarse-grained sandstone with granules that fines upward to a

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medium- to fine-grained sandstone. Beds of this facies are characterized by a basal scour surface overlain by continuous to discontinuous laminations, cross-strata, and (or) structureless zones. These four facies are interpreted, respectively, as the deposits of sabkhas, eolian dunes, pedogenic calcretes, and fluvial (wadi) channels. At the Keystone Quarry, the overall facies succession from base to top of the Loyalhanna Member is as follows: eolian dune, sabkha, eolian dune, pedogenic calcrete, sabkha, eolian dune, and fluvial (wadi) channels. These facies suggest that the climate was arid or semi-arid during deposition of the Loyalhanna Member.

### **DETAILED SURFICIAL GEOLOGIC MAPPING AND TERRAIN ANALYSIS OF THE BLUE HILLS FELSENMEER VALLEY, RUSK COUNTY, WISCONSIN. Jeremy Hinke, undergraduate student, with Chad Wittkop, faculty.**

*North-Central/South-Central Geological Society of America Meeting, Lawrence, KS, 14 April 2007.*

The Paleoproterozoic Barron Quartzite of west-central Wisconsin forms a rolling upland with as much as 180 meters of relief known locally as the Blue Hills. Our study concerns the Blue Hills Felsenmeer State Natural Area in Rusk County, which encompasses a small valley 300 meters long, 100 meters wide, with 25 meters of relief. Underlain by angular quartzite boulders averaging 30 cm long, the valley contains little to no vegetation and contrasts markedly with the surrounding mixed conifer and hardwood forest. Previous studies described the boulder accumulation in this valley as a felsenmeer, which requires in situ frost weathering in a periglacial environment. This work is part of a larger study re-examining the origin of this valley in effort to evaluate if the feature is truly a felsenmeer (rocks frost-shattered in place), and determine if other mechanisms, such as talus accumulation, may account for this feature (Thompson and Syver-son, 2006).

We present a detailed surficial geologic map of the valley generated through collection of differential GPS data in the field and supplemented by aerial photo interpretation. The map is plotted on a LiDAR (Light Detection and Ranging) base with a two-foot contour interval provided by courtesy of the Barron County Soil and Water Conservation Office. Mapping targets include areas of boulder accumulation with no vegetation, areas of boulder accumulation with some vegetation, bedrock outcrops, and possible meltwater features.

LiDAR data were also employed to generate digital elevation models, which can be used to create shaded-relief maps and conduct terrain analysis. Parameters obtained from digital terrain analysis—including slope angle and aspect angle—may provide additional insight regarding the mechanism of land scape development by comparing locations of boulder accumulation with

slope angle and aspect values using GIS. Areas of boulder accumulation with slopes near the angle of repose would be more suggestive of talus than felsenmeer origin, while areas of boulder accumulation with low slopes may be more suggestive of a felsenmeer origin.

**DEVELOPMENT OF A PETROPHYSICAL MODEL TO MONITOR NITRATE IN THE UNSATURATED ZONE.** Anna Baker and Treven Wisz, undergraduate students, with Katherine Grote, faculty.  
*Fall American Geophysical Union Meeting, San Francisco, CA, 10-14 Dec. 2006.*

In many agricultural areas, nitrate contamination is a significant water quality problem for both groundwater and surface water. The leading cause of nitrate contamination is excessive application of fertilizer. To prevent leaching of nitrates into the groundwater, fertilizers should not be applied in excess of what crops can absorb. However, determining how much nitrate is available to crops through pore water is difficult, so farmers typically apply more fertilizer than crops can absorb to ensure adequate nutrient availability. This research investigates the feasibility of monitoring nitrate concentrations in pore water on the field scale using time domain reflectometry (TDR) techniques. TDR techniques can be used to measure the volumetric water content and bulk electrical conductivity of the soil. Using these parameters, petrophysical relationships can be applied to determine the electrical conductivity of the pore water, which can then be related to nitrate concentration if fertilizers are the primary source of dissolved solids in the pore water. Previous research conducted under controlled conditions on a single soil type has indicated that TDR has potential for estimating nitrate concentrations in pore water, but further research conducted on a range of soil textures is needed to determine whether this technique can be practically applied in heterogeneous soil conditions. In this project, a solution with a known nitrate concentration was applied to different soil textures under relatively dry conditions. For each soil, the volumetric water content and bulk electrical conductivity were measured. Then, additional nitrate solution was applied to each soil to increase the soil water content, and measurements were repeated. Finally, the entire procedure was repeated using solutions with different nitrate concentrations. Data from these experiments were used to develop petrophysical relationships between bulk electrical conductivity and nitrate concentration of the pore water for different soil textures under a range of water contents. These relationships can be used to infer nitrate concentrations from TDR measurements in different soil textures or can be compared to determine the feasibility of developing a more universal petrophysical relationship that could be applied to multiple soil textures in a heterogeneous field environment.

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**ESTIMATING RECHARGE AREAS FOR LARGE SPRINGS IN ST. CROIX COUNTY.** Mike Molnar and Jeremy Hinke, undergraduate students, with Katherine Grote, faculty.

*Wisconsin Groundwater Association Conference, Wisconsin Dells, WI, 23 Feb. 2007.*

Identification and characterization of springs are important for effective groundwater/surface water management. In some areas, recent population growth or economic development may pose a threat to springs through the installation of high capacity pumping wells within the spring recharge area. Recent legislation in Wisconsin prohibits the installation of high capacity pumping wells within the recharge area of large springs if these wells would result in degradation of the spring. However, information on the location and recharge area of springs is currently very limited, so practical implementation of this legislation is difficult. The main objectives of this investigation were to identify the locations of springs within St. Croix County, an area experiencing very rapid population growth, and to delineate the recharge area of large springs.

The locations and discharge rates of 87 springs within St. Croix County were determined during this investigation. For springs with high discharge rates, chemical data and estimates of groundwater age were used in conjunction with geological information to create a conceptual model of flow to each spring. Conceptual models varied widely across the county, where some data suggested that flow through fractures or dissolution channels was predominant, while other analyses showed that a significant portion of the spring discharge probably percolated through porous media. The conceptual model developed for each spring provided input for an iterative process of infiltration modeling and flow path prediction to estimate and delineate the recharge area for large springs.

**ORIGIN OF THE BLUE HILLS FELSENMEER STATE NATURAL AREA #74, RUSK COUNTY, WISCONSIN.** Andrew H. Thompson, undergraduate student, with Kent M. Syverson, faculty.

*North Central Section Geological Society of America Meeting, Akron, OH, 19-21 April 2006. Abstracts with Programs 38.4 (2006): 25.*

A felsenmeer exhibits angular boulders of uniform size resting on low-angle slopes. Felsenmeers may indicate intense freeze-thaw processes during periglacial conditions. The Blue Hills Felsenmeer State Natural Area in Rusk County, Wisconsin, was set aside to preserve an unusual boulder-covered valley. The aim of our study is to determine if this site is a true felsenmeer (rocks frost-shattered in place) or if it is a talus deposit (associated with falling rocks).

The valley at the Blue Hills site (NW1/4 Sec. 31, T35N, R9W; Strick-

land 7.5' quadrangle) is 25 m deep, 300 m long, and trends east-west. The Blue Hills site was not glaciated during the late Wisconsinan Glaciation. The valley walls are covered by angular quartzite boulders with an average diameter of 0.7 m. The boulders are derived from subhorizontal beds of the underlying Precambrian Barron quartzite. The quartzite beds are up to 0.5 m thick and vertical joints trend approximately north-south and east-west. Valley-floor elevations decrease approximately 18 m from the head of the valley to the mouth. The midpoint of the longitudinal profile displays a bulge up to 9 m above the adjacent valley floor. Typical valley-wall slopes are about 25 degrees. These slopes are much higher than reported for other felsenmeers (<10 degrees). A few quartzite outcrops form flat benches 5 m wide and tens of meters long parallel to the valley's long axis. These are present along the walls of the felsenmeer valley approximately two-thirds of the way up the slope. Block fields are present above and below the benches. The block fields are indented slightly below the bedrock benches. This might indicate the deflection of falling rocks around the bedrock benches and suggest a rock-fall (talus) origin for the boulders. Angular quartzite blocks on gently sloping uplands around the site might represent a true felsenmeer.

The steep slopes and indentations suggest a gravity-fall origin for the block fields within the valley and a feature that is a talus, and not a true felsenmeer. A ground-penetrating radar survey is planned for spring 2006 to determine the depth to bedrock below the boulders in the valley. If the feature is a talus, the boulders should be thicker at the base of the valley wall. Using these results it should be possible to determine the genesis of the site.

**ORIGIN OF THE CONVEX LONGITUDINAL VALLEY PROFILE, BLUE HILLS FELSENMEER STATE NATURAL AREA, RUSK COUNTY, WISCONSIN.** Emilia Teige, undergraduate student, with Kent Syverson, faculty.

*North-Central/South-Central Geological Society of America Meeting, Lawrence, KS, 10-13 April 2007.*

A felsenmeer is a “sea” of angular boulders that has formed in situ on a gently sloping surface. The Blue Hills Felsenmeer State Natural Area valley (NW1/4 Sec. 31, T35N, R9W; Strickland 7.5' quadrangle) is 300 m long, 25 m deep, and has walls sloping at approximately 25 degrees. The felsenmeer valley has a convex longitudinal profile marked by angular quartzite boulders. A topographic map (CI=2 ft) generated using Barron County LiDAR data shows that the midpoint “bulge” rises up to 30 ft (9 m) above the adjacent valley floor.

The purpose of our study is to determine what has caused the convex longitudinal valley profile. Thompson and Syverson (2006) suggest that the convex profile was caused by falling rocks. A boulder accumulation that is

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much thicker beneath the bulge than the adjacent parts of the valley floor would support a talus (rock fall) origin. A uniform boulder thickness over the intact bedrock surface would suggest in situ frost-shattering that has occurred over a convex valley floor.

We will use Ground Penetrating Radar [GPR] in the felsenmeer valley to determine the thickness of boulders and the shape of the underlying bedrock surface. GPR works by sending a radio wave into the ground. The wave bounces back to the surface when it hits a material with a different velocity. The two-way travel time and wave velocity are used to determine the depth of the reflection horizon. We will use a frequency that provides the proper resolution and depth of penetration (50 or 100MHz). The GPR survey and the detailed land-surface topographic map will permit us to document the thickness of boulders and the longitudinal profile of the intact bedrock surface.

GPR results will help us understand the origin of Blue Hills Felsenmeer valley. Last fall our initial attempt to perform the field GPR survey was stymied by instrumentation problems. However, if the future GPR results indicate that boulders are much thicker beneath the bulge at the midpoint of the valley, then at least that portion of the Blue Hills Felsenmeer is a talus. Uniform boulder thicknesses along the valley floor would reinforce a felsenmeer origin for the boulder field. If the longitudinal profile of the valley-floor bedrock surface is convex, then pressurized subglacial meltwater must have incised the original valley floor prior to the late Chippewa Phase of the Wisconsin Glaciation.

### **PETROGRAPHIC ANALYSIS OF THE MISSISSIPPIAN (CHESTERIAN) LOYALHANNA MEMBER OF THE MAUCH CHUNK FORMATION, KEYSTONE QUARRY, SOUTHWESTERN PENNSYLVANIA.**

**Gillian Krezoski**, undergraduate student, with **Karen Havholm**, faculty, and **Christopher Swezey**, U.S. Geological Survey.

*North Central Section Geological Society of America Meeting, Akron, OH, 19-21 April 2006. Abstracts with Programs 38.4 (2006): 6.*

The Mississippian (Chesterian) Loyalhanna Member of the Mauch Chunk Formation consists of mixed carbonate-siliciclastic sediments in southern Pennsylvania. At the Keystone Quarry, near Springs, Pennsylvania, a 15-m thick section of the Loyalhanna Member is interpreted as eolian dune, sabkha, and fluvial (wadi) deposits, and a paleosol with calcrete (Bk horizon), all of which formed in a semi-arid to arid climate. At thin-section scale, the eolian dune facies consists of laminae of medium- to fine-grained sand alternating with laminae of very fine-grained sand to silt. The sabkha facies consists of discontinuous laminae of medium-grained sand to silt. The fluvial facies is structureless coarse-grained sand to silt. The paleosol is structureless coarse-grained sand to silt with 0.5-1 cm thick micrite-rich laminae. Initial petrographic

studies reveal that the eolian, sabkha, and fluvial facies consist primarily of framework grains and cement, and very little matrix or porosity. Framework grains are composed of mono- and polycrystalline quartz and calcite (peloids, broken and abraded skeletal grains, whole and broken ooids, and rare wackestone lithoclasts). Chert and minor feldspar, mica, and heavy minerals are also present. Carbonate and siliciclastic framework grains are present in relatively equal proportions in the eolian facies, siliciclastic grains predominate in the fluvial facies, and carbonate grains predominate in the sabkha facies. Petrographic characteristics of the eolian facies considered diagnostic of carbonate-rich eolian sediment include abundant quartz silt, diverse carbonate grain types (including broken ooids), lack of skeletal particles >4mm, evidence of solution packing, and lack of porosity. Petrographic characteristics of the paleosol include micrite matrix and microspar cement. Micrite-rich laminae in the paleosol have irregular upper and lower boundaries and contain floating framework grains. In all facies, carbonate grains are more rounded than siliciclastic grains, and straight and irregular grain contacts indicate that some compaction occurred prior to cementation. Intergranular areas are filled with spar, microspar, and local iron oxide, as well as late-stage fibrous calcite grain overgrowths that fill strain voids on the tops and bases of grains.

**POTENTIAL MELT WATER INCISION OF THE BLUE HILLS FELSENMEER VALLEY, RUSK COUNTY, WISCONSIN DURING LATE WISCONSIN GLACIATION.** Steven Hoaglund, undergraduate student, with Kent Syverson, faculty.

*North-Central/South-Central Geological Society of America Meeting, Lawrence, KS, 10-13 April 2007.*

The Blue Hills Felsenmeer State Natural area is an unusual valley of angular quartzite boulders in a high-relief area of Rusk County, WI (Thompson and Syverson, 2006). The valley at the Blue Hills site (NW1/4 Sec. 31, T35N, R9W; Strickland 7.5' quadrangle) is 25 m deep and 300 m long. The valley has a small modern water-catchment area that heads at an elevation of 1456 ft (444 m) based on LiDAR data. Cahow (no date) proposed the valley was cut by Chippewa Lobe meltwater during the late Chippewa Phase of the late Wisconsin Glaciation. The purpose of this study is to determine if the Chippewa Lobe ice surface was sufficiently high during the late Chippewa Phase to supply meltwater to erode the valley.

In order to do this, we mapped the maximum extent of the Chippewa Moraine. We used domestic well logs, the Rusk County soil survey, aerial photographs (1:16,000 scale), and 7.5' topographic maps to construct a preliminary 1:24,000-scale glacial sediment/landform map. Ten field days were spent studying the proposed glacial sediment/landform contacts in the felsenmeer area.

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Work included excavating slumped road-cuts, describing exposed sediment outcrops, and digging bore holes to examine glacial sediment. Field observations verified the presence of chaotic hummocks, kettles, and ice-walled-lake plains in the Chippewa Moraine. The outermost extent of the Chippewa Moraine provides reasonable minimum estimate of ice extent during the late Chippewa Phase.

The method of Clark (1992) was used to determine minimum ice-surface elevations near the head of the felsenmeer valley. This method requires measuring hummock-crest elevations within 2 km of the former ice margin. This provides a minimum ice-surface elevation estimated by Clark (1992) to be within 30-100 ft (10-30 m) of the actual value.

We measured a hummock crest elevation between 1400-1410 ft (427-430 m). The hummock, located 1.5 km south of the felsenmeer valley head, puts glacier ice within 56 ft (17 m) of the valley head threshold. This is well within the 30-100 ft (10-30 m) range. It is therefore possible that glacier ice from the late Chippewa Phase of the late Wisconsin Glaciation could have provided meltwater to erode the valley. It is also possible that an earlier event (such as the early Chippewa Phase or a pre-Wisconsin event) could have supplied meltwater to erode the valley.

**REASSESSMENT OF THE BELT SUPERGROUP: A STRATIGRAPHIC ANALYSIS OF THE DEVIL'S FENCE ANTICLINORIUM, SOUTHWEST MONTANA (AN EDMAP PROJECT).** Adam Kjos, Catherine Maclaurin, Christopher Kohel, Joseph Nawikas, and John Stoltz, undergraduate students, with J. Brian Mahoney and Phillip Ihinger, faculty. *Geological Society of America: National Conference, Philadelphia, PA, 20-26 Oct. 2006.*

In the Devil's Fence Anticlinorium of southwest Montana, the Middle Proterozoic Belt Supergroup has traditionally been divided into three formations: Greyson Shale (green and gray mudstone with stromatalitic horizons) conformably overlain by Spokane Shale (grayish red and green mudstone with minor limestone and sandstone beds), which is gradationally overlain by Empire Shale (greenish gray siliceous mudstone with minor sandstone interbeds). Previous workers describe a significant unconformity that removed >100's m of section beneath the overlying Middle Cambrian Flathead Sandstone. Detailed geologic mapping and stratigraphic analysis in the Devil's Fence Anticlinorium suggests a revision of Belt Supergroup stratigraphy in the region should be considered. Two key observations support this revision: 1) the contact beneath the Flathead Sandstone is not a sharp, angular unconformity, but rather a gradational, coarsening upward succession; 2) the north to south lateral transition from dominantly green mudstone ("Empire") to red mudstone ("Spokane")

represents lateral diagenetic variation as opposed to a vertical stratigraphic succession. These observations suggest that the strata beneath the Flathead sandstone are not Middle Proterozoic, but are probably significantly younger. Ongoing detrital zircon analyses will further constrain the age of this subjacent strata.

**A RECORD FOR MESOZOIC OROGENY AND BACK-ARC BASIN FORMATION AND MAGMATISM IN WESTERN STIKINIA: EVIDENCE FROM STRATA AT JOHN PEAKS, EASTERN ISKUT RIVER AREA, NORTHWESTERN B.C.** Suzanne Reed and Adam R. Kjos, undergraduate students, with Lori D. Snyder and J. Brian Mahoney, faculty, Robert G. Anderson, Kirstie Simpson, and Vicki McNicoll, Geological Survey of Canada.

*Geological Society of America, Salt Lake City, UT, 16-19 Oct. 2005. Abstracts with Programs 37.7 (2005): 83.*

Sedimentary and volcanic strata in the John Peaks area (NTS 104B/9) of northern British Columbia provide a record for the latest pre-accretionary history of Stikine Terrane. Lower and Middle Jurassic volcanic strata are widespread in the area, and a well-exposed, though faulted section occurs in the over-turned limb of the McTagg Anticlinorium. Middle Jurassic rocks in the sequence are potential correlatives to world-class volcanogenic massive sulphide deposits at the Eskay Creek Au-Ag Mine (EC), 20 km to the northwest.

Detailed field mapping, structural measurements, petrography, geochemistry and U-Pb geochronology help interpret the nature, age, and volcanogenic evolution of these strata. Stratigraphy in the area is divisible into six members. The basal member (124 m thick) is a granitoid-bearing, cobble conglomerate overlying an angular unconformity on Upper Triassic Stuhini Group; granitoid fragments suggest stripping of the Late Triassic volcanic arc to its plutonic roots in a Triassic-Jurassic mountain-building episode.

Overlying the basal member is a subfeldspathic volcanoclastic sandstone, siltstone and shale sequence (75 m) correlative with Pleinsbachian strata to the north. Overlying the sedimentary strata is a thin andesitic crystal tuff (15 m), and a feldspathic, locally calcareous, sandstone (212 m) which hosts common dacite sills. This succession is capped by a thick sequence of felsic lapilli tuff, tuff breccia, and volcanic conglomerate (483 m), including a fiamme-bearing, rhyolitic tuff that yielded a U-Pb age of  $174.7 \pm 1.6$  Ma, coeval with footwall rhyolite at EC. Geochemistry of volcanic facies and apparently co-magmatic sills within the lower five members show a volcanic arc affinity.

An uppermost unit comprises pillowed, locally plagioclase-phyric, basalt flows interbedded with siliceous siltstone and volcanic mudstone and silt

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stone (>475m; 'pajama beds'). These tholeiitic flow rocks have an E-MORB affinity distinct from the underlying succession, and host several sub-economic VMS-style mineral occurrences similar to EC.

The strata at John Peaks provide evidence for Triassic-Jurassic mountain building and for the subsequent, bimodal magmatism of the Middle Jurassic trans-tensional back-arc basin which extends for more than 200 km N-S in the region.

**STRUCTURAL AND MAGMATIC EVOLUTION OF THE HELENA SALIENT: NEW GEOLOGIC MAPPING IN THE DEVILS FENCE ANTICLINORIUM.** Joseph M. Nawikas, Adam R. Kjos, Christopher A. Kohel, Catherine I. Maclaurin, and John M. Stoltz, undergraduate students, with Phillip D. Ihinger and J. Brian Mahoney, faculty.

*Geological Society of America, Salt Lake City, UT, 16-19 Oct. 2005. Abstracts with Programs 37.7 (2005): 76.*

The Disturbed Belt of western Montana describes a series of east-vergent Late Cretaceous folds and thrust faults that have imbricated Precambrian strata of the Belt Supergroup with Paleozoic miogeoclinal strata and Mesozoic sedimentary rocks of the Rocky Mountain foreland. Deposition of the Elkhorn Mountain volcanics and emplacement of the coeval Boulder Batholith and associated satellite plutons were roughly synchronous with structural deformation. The genetic relationship between deformation and regionally extensive magmatism during the Late Cretaceous is a matter of debate.

The Devils Fence anticlinorium is a thin-skinned deformational system within the hanging wall of the Lombard thrust plate of the Helena salient within the Disturbed Belt. The anticlinorium was mapped in the late 1940's and early 1950's as part of a regional investigation into the geology and mineral deposits of the Boulder Batholith. New 1:24,000 scale geologic mapping of the region, undertaken under the auspices of the USGS EDMAP program, in association with Montana Bureau of Mines and Geology, will produce an updated series of 7.5 minute quadrangle maps, detailed cross sections, and a significant amount of new geochemical and geochronological data. Our aim is to document the genetic relationship between Late Cretaceous contractional deformation and magma emplacement. Detailed mapping in conjunction with geochemical and geochronological analysis will allow us to produce an accurate assessment of the timing of deformation and magma emplacement within the Devils Fence anticlinorium.

New mapping has confirmed the basic framework established in earlier studies and has identified a number of previously unrecognized subsidiary contractional structures on the flanks of the main anticlinorium. Deformed sedi-

mentary strata are intruded by a compositionally diverse suite of stocks, dikes, and sills including pyroxene diorite, hornblende granodiorite, and andesite porphyry, presumably related to the emplacement of the Cretaceous Boulder Batholith. New geochronologic constraints on the timing of deformation and magmatism are provided by U/Pb ages from the Doherty Mt and Sagebrush Park stocks as well as the basal member of the Elkhorn Mountain volcanic package.

## HISTORY

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**ANTI-CLERICALISM AND RELIGIOUS IDENTITY IN PRE-REVOLUTIONARY RURAL FRANCE.** Ioana Niculescu, undergraduate student, with Patricia Turner, faculty.

*Society for French Historical Studies, Champaign, IL, 20-23 April 2006.*

## KINESIOLOGY

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**ABSOLUTE ENERGY EXPENDITURE GUIDELINES MAY REDUCE THE EFFECTIVENESS OF AEROBIC EXERCISE IN HEALTHY, MIDDLE-AGED WOMEN.** Kyle Zahler, Heidi Pederson, Jeanna Wallenta, and Erica Borresen, undergraduate students, with Lance Dalleck, faculty.

*Northland American College of Sports Medicine Spring Tutorial, St. Cloud, MN, 7 April 2006.*

**Purpose:** The purpose of this study is to examine the relationship between energy expenditure relative to body mass (kcal/kg/wk) and health outcomes in a middle-aged, female population following a 1000 kcal/wk exercise program. **Methods:** Twenty three sedentary, eumenorrhic female subjects (mean  $\pm$  SD, age:  $35.5 \pm 7.1$  yr; height:  $165.9 \pm 6.0$  cm; weight:  $77.1 \pm 19.0$  kg; body fat composition:  $33.4 \pm 6.5$  %) will complete a 12-week aerobic exercise program designed to expend 1000 kcal/wk at 40-60% of heart rate reserve (HRR). Heart rate monitors will be used to ensure the appropriate exercise intensity is achieved and weekly exercise programs will be logged into a database. **Results:** Baseline data collection yielded the following measurements: (mean  $\pm$  SD, waist circumference:  $84.3 \pm 14.4$  cm; BMI:  $27.8 \pm 6.1$  kg/m<sup>2</sup>; systolic BP:  $116.5 \pm 12.8$  mmHg; diastolic BP:  $74.4 \pm 7.5$  mmHg; VO<sub>2</sub>max:  $34.1 \pm 6.7$  mL/kg/min; total cholesterol:  $210.9 \pm 37.0$  mg/dL; HDL:  $52.4 \pm 13.9$  mg/dL; LDL:  $139.8 \pm 32.6$  mg/dL; triglycerides:  $106.1 \pm 40.1$  mg/dL; blood glucose:  $85.2 \pm 10.6$  mg/dL). Currently, each subject has completed four weeks of the exercise program. **Conclusion:** Upon completion of the 12-week exercise program,

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it is hypothesized that there will be a relationship between energy expenditure relative to body mass (kcal/kg/wk) and the various health outcomes being measured in the study. These findings would suggest that energy expenditure recommendations relative to body mass, rather than absolute guidelines, would better optimize the health benefits associated with an exercise program.

**BURNOUT LEVELS IN ATHLETIC TRAINING STUDENTS ACROSS A SEMESTER.** **Stephanie J. Lopez**, undergraduate student, with **Mary J. LaRue** and **Jeffrey Janot**, faculty.

*Wisconsin Athletic Trainers' Association Annual Business Meeting & Symposium, La Crosse, WI, 27-28 April 2007.*

Overall, moderate levels of emotional exhaustion, low levels of depersonalization, and high scores of personal accomplishment were reported. Significant differences were observed in emotional exhaustion scores on the MBI between the first two administrations. Significant differences in MBI depersonalization scores between administrations one and two and one and three were also observed. No significant difference was found in MBI subscale scores between schools.

Even though the ATs are stressed, they still enjoy what they are doing and feel they have sufficient support from the athletic training staff and students. However, burnout still appears to be an issue for athletic training students. Levels of burnout are increased during season overlap and at the end of the fall semester. ATEPs need to be aware of these burnout levels and work to minimize them.

**COMPARING CARDIAC REHABILITATION OUTCOMES IN A TRADITIONAL VERSUS CONTEMPORARY, INTERNET-BASED TELEMEDICINE PROGRAM.** **Melissa Paulson**, undergraduate student, with **Lance Dalleck**, faculty.

*American College of Sports Medicine 53rd Annual Meeting, Denver, CO, 31 May-3 June 2006.*

Purpose: To determine potential significance of the outcome changes from baseline (BL) to 12-wk in a traditional program in Albuquerque, New Mexico (ALB) and a telemedicine internet-based program in Gallup, New Mexico (GAL). Methods: The patients in GAL had telemedicine appointments with the ALB cardiologist at both BL and 12-wks. Independent t-tests were performed to compare BL to 12-wk changes in outcome parameters between ALB (n = 152, 66.4 yrs) and GAL (n = 28, 64.8 yrs). Results: Comparisons of mean BL to 12-wk changes showed no significant differences (P > 0.05) between ALB vs. GAL programs: exercise (755 vs. 656 kcal/wk), SSP (-0.4 vs. -7.7 mmHg), DBP (-0.9 vs. -5.0 mmHg), Total Cholesterol (-10.1 vs. -8.6 mg/dL),

HDL (+3.6 vs. +1.4 mg/dL), LDL (-12.5 vs. -7.8 mg/dL), Triglycerides (-8.9 vs. -16.3 mg/dL), and BMI (-0.1 vs. -0.3). Conclusion: Our data indicate that patients in an internet-based, telemedicine cardiac rehabilitation program have comparable results to patients participating in a traditional program.

**DEVELOPMENT OF A METABOLIC EQUATION FOR ELLIPTICAL CROSSTRAINER EXERCISE.** Heidi Pederson, undergraduate student, with Lance Dalleck, faculty.

*American College of Sports Medicine 53rd Annual Meeting, Denver, CO, 31 May–3 June 2006.*

Purpose: To develop an accurate metabolic prediction equation for elliptical crosstrainer (ECT) exercise. Methods: Forty male and female subjects (age: 30 yrs; height: 173 cm; weight: 72.3 kg; body composition: 18.3 %) completed two randomized testing sessions. Steady-state oxygen uptake (VO<sub>2</sub>) was measured while subjects exercised on the ECT at nine separate workloads during each testing session. Steady-state VO<sub>2</sub> measurements from the last 2 min of each workload were used to develop a metabolic prediction equation for ECT exercise. Results: Multiple regression analysis was used to predict steady-state VO<sub>2</sub> from: ECT resistance, ETC cadence, and subject body mass. These resulted in the following model: (R<sup>2</sup> = 0.783): Steady-state VO<sub>2</sub> = 3.5 + 1.5(Cadence) + 1.22(Resistance) – 0.11(Weight). Both the standard error of the estimate (SEE) and total error (TE) for the prediction of steady-state VO<sub>2</sub>, under all ECT workload conditions combined, was 2.8 mL/kg-1/min-1. The correlation coefficient between predicted and measured steady-state VO<sub>2</sub> values was r = 0.89. Conclusion: SEE and TE values for the developed ETC metabolic equation are similar to those reported in previous studies investigating the accuracy of metabolic equations for other exercise modalities.

**EFFECTS OF A FOUR WEEK PLYOMETRIC TRAINING PROGRAM ON MEASUREMENTS OF POWER IN MALE COLLEGIATE HOCKEY PLAYERS.** Corey M. Reyment, Megan E. Bonis, Jacob C. Lindquist, and Jeffrey M. Janot, undergraduate students, with Lance C. Dalleck, faculty. *2007 National American College of Sports Medicine Annual Conference, New Orleans, LA, 29 May-2 June 2007.*

The purpose of this study was to examine the effects of plyometric training following a four week training program on vertical jump height, 40 yard dash, 10 yard dash, and anaerobic power. Overall, the findings indicated that two days of plyometric training a week for four weeks is sufficient to elicit improvements in single leg vertical jump height and overall power endurance. The lack of significant correlations among these variables suggested that there was a poor relationship between anaerobic power measures via Wingate test

## *Kinesiology*

ing and vertical jump height. Therefore, it could be concluded that plyometric training significantly improves anaerobic power and single leg vertical jump height independent of one another. Further research is needed to study these differences and how these improvements translate to on-ice performance.

**LIGHT THERAPY VS. ULTRASOUND IN THE TREATMENT OF TENDINITIS.** **Stephanie Bengel, Lisa Cowan, Lisa Dorn, and Meghan Martin**, undergraduate students, with **Robert Stow**, faculty.

*Wisconsin Athletic Trainer's Association State Meeting, La Crosse, WI, 27-28 April 2007.*

The purpose of this study was to determine the efficiency of low-level laser light therapy in comparison to traditional ultrasound in the use of therapeutic modalities. Seven Division III Collegiate athletes, men and women, ages 18-23, were administered either light therapy or ultrasound for five total treatments. It was found that ultrasound and light therapy had very similar results when compared. Ultrasound increased range of motion in lower body while light therapy produced better results for upper body range of motion. The average range of motion for lower body comparing ultrasound and light therapy was an eight degree increase. Upper body range of motion increased an average of seven degrees with light therapy. Ultrasound decreased pain more with an average decrease of 11.7 units for upper body and 4.66 units for lower body. Light therapy proves to be a more time effective modality. This study adds research to the sparsely researched topic of light therapy in the use as a therapeutic modality.

**A MODERATE-INTENSITY EXERCISE PROGRAM FULFILLING THE ACSM NET ENERGY EXPENDITURE RECOMMENDATION, IMPROVES HEALTH OUTCOMES IN PREMENOPAUSAL WOMEN.**

**Erica C. Borresen, Jenna T. Wallenta, Kyle L. Zahler, and Eugene K. Boyd**, undergraduate students, with **Lance C. Dalleck**, faculty.

*American College of Sports Medicine 54th Annual Meeting, New Orleans, LA, 29 May-2 June, 2007*

The purpose of this study was to assess and quantify the health outcomes associated with a moderate-intensity (50% maximal oxygen uptake reserve – VO<sub>2</sub>R) exercise program designed to achieve the ACSM net caloric expenditure guideline of 1000 kcal f wk<sup>-1</sup>. Although the ACSM specifies that the energy expenditure goal should be a net caloric expenditure of 1000 kcal f wk<sup>-1</sup>, and classifies relative moderate-intensity as 40-59% of HRR or VO<sub>2</sub>R, we are unaware of any previous investigations that have examined the specific health outcomes associated with an exercise program fulfilling these requirements. Results indicate that significant health benefits will be conferred to pre-

viously sedentary, premenopausal women that engage in a moderate-intensity, 10-week exercise program, designed to fulfill the net energy expenditure guideline of 1000 kcal f wk-1.

**PREPARING PHYSICAL EDUCATORS AND EDUCATING CHILDREN: EVERYONE BENEFITS!** Jesse Kellum and Stephanie Barnes, undergraduate students, with Jeffrey Lindauer, faculty.

*Wisconsin Association for Health, Physical Education, Recreation, and Dance (WAHPERD) 2005 Annual Convention and Professional Development Conference, Janesville, WI, 26-28 Oct. 2005.*

There is a growing population of home and alternatively schooled children in the state of Wisconsin. Some of these children participate in activities like dance, martial arts, or various other recreational programs. However, few home-schooled children receive developmentally appropriate movement and skill instruction from trained physical educators. This presentation provides information about a UW-Eau Claire program that allows physical education majors to deliver physical education classes to home-schooled children. This experience not only provides a needed service for children, but also provides a wonderful field experience for pre-service physical educators.

## **MANAGEMENT AND MARKETING**

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**LEADERSHIP DEVELOPMENT: NO LONGER AN OPTIONAL ACTIVITY.** Rebecca Westbrook, undergraduate student, with Douglas Olson, faculty.

*Spring Convention of the American College of Health Care Administrators, Charlotte, NC, 14-17 April 2007.*

**SUPERBOWL ADVERTISING EFFECTIVENESS: 2005 MOVIE ADS IMPRESS TARGET AUDIENCE.** Amanda Sutherland, undergraduate student, with Rama Yelkur, faculty.

*Atlantic Marketing Association's Annual Meeting, Salem, MA, 28 Sep.-1 Oct. 2005.*

This paper builds on prior research which showed a link between Super Bowl ad effectiveness and subsequent U.S. Box Office success. The purpose of this study was to test several hypotheses regarding Super Bowl advertising effectiveness and Super Bowl advertising recall. The research sample included 364 high school and college students in one Midwestern city. Significant results were found for all nine Super Bowl movie ads studied. Respondents who

## Mathematics

saw movie trailers for upcoming movies during the Super Bowl telecast indicated they were more likely to attend these movies in the theaters than the respondents who did not see the advertisements. Additional hypotheses were also confirmed. This paper concludes with discussion, study limitations, and both managerial and research implications.

### MATHEMATICS

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**DEFORMATIONS OF INFINITY LIE ALGEBRAS.** Eric Weber, undergraduate student, with **Michael Penkava**, faculty.  
*National Conference of Undergraduate Research, San Rafael, CA, 11-15 April 2007.*

Infinity algebras are generalizations of associative and Lie algebras. They play a role in both mathematics and mathematical physics. We study low dimensional examples of these algebras, and classify the nonisomorphic structures. Deformation theory is concerned with how one structure smoothly changes into another structure, and the object of studying the deformations is to understand how the space of all such structures is glued together. In physics, deformations arise because the algebra of quantum mechanics is a deformation of the algebra of the phase space of classical physics. In mathematics, one is interested in the structure of the space of algebras, which is called a moduli space. We present some examples of low dimensional moduli spaces of algebras, and show how the deformations give a picture of these moduli spaces.

**DEFORMATION THEORY OF LIE ALGEBRAS.** Carolyn Otto and Ryan Steinbach, undergraduate students, with **Michael Penkava**, faculty.  
*20th National Conference on Undergraduate Research, Asheville, NC, 6-9 April 2006;*  
*2nd Presentation by Carolyn Otto: Alfred Renyi Institute of Mathematics, Budapest, Hungary, 4-25 Aug. 2005.*

Lie algebras are a type of nonassociative algebra that plays an important role in mathematics and physics. As a consequence, the classification of these algebras up to isomorphism is an important question. The set of all isomorphism classes of Lie algebras of a fixed dimension is called the moduli space of Lie algebras of that dimension. To study this space, we need to understand how the algebras deform, that is, to see what algebras can be obtained from a fixed Lie algebra by varying the rules of the algebra slightly. In this talk, we will discuss how the deformations are constructed, using the notion of cohomology,

which leads finally to the notion of a versal deformation, which contains all the information for all possible deformations in a very concise form.

**INACCESSIBLE CARDINALS.** **Derek Franz**, undergraduate student, with **Robert Andersen**, faculty.

*74th Annual Meeting of the Wisconsin Section of the Mathematical Association of America, Whitewater, WI, 21-22 April 2006.*

The Zermelo-Fraenkel axioms for set theory allow the construction of transfinite numbers. Just how large of numbers ZF permits - or should permit - is an ongoing question; inaccessible cardinals are the first such numbers (i.e., they initiate the study of large cardinals). So in this talk, we will cover the topics of ordinal cofinality, models, the von Neumann cumulative hierarchy, and Godel's second incompleteness theorem.

**REALIZING KEPLERIAN ORBITS AS GEODESICS ON A SURFACE OF REVOLUTION.** **Brandon Barrette**, undergraduate student, with **Alexander Smith**, faculty.

*National Conference of Undergraduate Research, San Rafael, CA, 11-15 April 2007.*

It is well known that in Newtonian physics, the gravitational trajectories in a central gravitational field are conic sections with one focus at the central mass. This is known as Kepler's First Law. We consider those gravitational trajectories that lie in a fixed plane  $P$  (perhaps thought of as an ecliptic plane), and investigate this question: To what extent can  $P$  be embedded as a surface of revolution  $S$  inside an abstract three-dimensional Euclidean space  $E$  in such a way that gravitational trajectories are mapped to geodesics on  $S$  subset of  $E$ ? To do this, we see that the coordinates of our surface of revolution can be described by a Clairaut patch, which is a special type of coordinate system that often arises in differential geometry. This reduces the original problem, which consists of a system of two second-order differential equations, to a single first-order differential equation. Comparing this with the general equation for trajectories in the ecliptic plane leads to the first fundamental form. We can then construct our surface of revolution and find it to be a hyperboloid of two-sheets and a hyperboloid of one-sheet. Our surface of revolution is a homogeneous isotropic space embedded in a Euclidean space with an indefinite metric. As such it has constant curvature and the isometry group  $O(2, 1)$  of the Minkowski three-space acts on  $S$  and takes geodesics to geodesics. There is an interesting correspondence between trajectories in the ecliptic plane and linear sections of our surface of revolution. A plot of the surface of revolution  $S$  and a geodesic is shown below. The plot on the left is a trajectory in the ecliptic plane  $P$ . The right plot shows that trajectory as a geodesic on the surface of revolution  $S$

## ***Mathematics***

**REALIZATIONS OF SUBSPACES OF  $L_p$ ,  $p > 2$ , WITH NORM GIVEN BY PARTITIONS AND WEIGHTS.** **Brandon Barrette**, undergraduate student, with **Simei Tong**, faculty.

*2007 Joint Mathematics Meeting, New Orleans, LA, 4-8 Jan. 2006.*

Many of the known complemented subspaces of  $L_p$  have realizations as sequence spaces. Different norms on spaces will give different norms of projections. Hence it will influence our understanding of the complemented subspaces of  $L_p$ . By introducing a norm given by partitions and weights, Alspach and Tong proved a unification of well-known spaces. They proved that this new norm is stable for sums of spaces. The most recent result is that subspaces of  $L_p$ ,  $p > 2$ , with unconditional bases have equivalent partition and weight norms.

This presentation will introduce the definition of the norm given by partitions and weights. A couple of examples will help us to understand the creation of a norm given by partitions and weights for a vector space. We will show that the space with this new norm is isomorphic to some well-known vector space. Finally we will present some discussion of creating a norm given by partitions and weights for a tensor product of Banach spaces.

This talk should be suitable for students who have had linear algebra and a first course of introduction to real analysis. We will review concepts of norms, Banach spaces and isomorphisms of spaces, and show some examples to help understand issues of projections and structures of spaces.

**TRANSPORTATION MODEL FOR EMERGENCY FLOODING SITUATIONS.** **Carolyn Otto** and **Cassandra Lawler**, undergraduate students, with **Simei Tong**, faculty.

*Mathematical Association of America-Wisconsin Section Meeting, Whitewater, WI, 21-22 April 2006.*

Flooding is a significant problem for Wisconsin. Although the floods of Wisconsin are not on the level of Hurricane Katrina, it is still relevant to investigate flooding in Wisconsin using mathematical methods. The focus of our research is on building a mathematical model for transporting supplies in an emergency flooding situation. Using the Simplex Method, we obtained an optimal solution to minimize the cost and time to collect and distribute the supplies needed. While we built a generic model to be used in any flooding situation, we specifically used the model for Dane County Wisconsin.

**MULTICULTURAL AFFAIRS**

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**STRENGTHENING OUR NATIONS: A PRE-COLLEGIATE SKILL BUILDING MODEL FOR AMERICAN INDIAN YOUTH IN GRADES 7-12.** Michael Ojibway, undergraduate student, with Odawa White, Multicultural Affairs Retention Coordinator.

*National Indian Education Association 37th Annual Convention, Anchorage, AL, 18-22 Oct. 2006.*

**MUSIC AND THEATRE ARTS**

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**ASSESSING THE CORRELATION BETWEEN THE LEARNING STYLES AND PRACTICE TECHNIQUES OF VOICE STUDENTS.** Courtney Doyel, undergraduate student, with Mitra Sadeghpour, faculty.

*49th National Association of Teachers of Singing (NATS) Conference, Minneapolis, MN, 30 June-4 July 2006.*

I have had an interest in learning styles since I was introduced to the concept by my homeroom teacher in middle school. My faculty mentor and I began discussing the presumed benefits of using the correct learning style in voice practice. We decided to examine the question, “What is happening in the practice room?,” and designed a study to research if and how much students utilize practice techniques that correlate with their learning style. A volunteer group of voice students completed a learning style test and were given a questionnaire to fill out every day they practiced for five weeks. Listed on the questionnaire, formulated with input from four voice faculty members, were a variety of different voice practice techniques that each related to a specific learning style. The students were asked to check off the techniques they used in their practice sessions. At the end of five weeks, we gathered the questionnaires and are currently looking for a correlation between the tested learning style and the techniques that each participant utilized in their practice sessions. We hope that by finding out how students are using their learning style we can better understand how teachers can help their students practice more efficiently.

**THE OPERA REHEARSAL PROCESS AS A RICH LEARNING EXPERIENCE.** Courtney Doyel, undergraduate student, with Mitra Sadeghpour, faculty.

*Sound and Nature: Celebrating the Spirit of Song: International Conference of Voice Teachers 6th Conference, Vancouver, BC, 11-15 Aug. 2005.*

## *Music and Theatre Arts*

In a rehearsal process with a limited time-frame, as is common in opera productions, students often memorize text and blocking and then repeat them back as if by rote, never reaching the stage of deeper understanding of how to learn a role, how to create a character, or even how to be on stage. With this learning problem as the basis of inquiry, I embarked on a research project with a student assistant to determine how this issue could be addressed. Without being able to increase student/teacher contact time, our aim was to create learning activities that both solve the practical issues of preparing for the performances and help students achieve deeper learning about performing in opera. Once we had thoroughly read the scholarship of teaching and learning literature applicable to our project, I designed the following activities which we then applied to the rehearsal and production period of Gianni Schicchi and Suor Angelica by Giacomo Puccini. I also designed modes of assessment for each activity in order to evaluate and then disseminate the results of our study. This paper documents the process of the project and presents the results of the research. The major project that we developed was videotaping rehearsals and then holding sessions where students watch the videos with a set of specific questions about their own work. After receiving verbal notes from the director, students are given cards with pre-printed questions and sent as a group to watch the video of their rehearsal. The questions ask them to follow up and expand on verbal feedback, and also ask the students to assess their own movement and character motivation on stage. This process of self-assessment is observed and documented by an outside observer, and at the end of the production period students are asked to write about the effectiveness of this strategy. A second activity is the incorporation of a character analysis project; students are asked to write analyses of their own characters based on the GOTE method outlined by Robert Cohen in his book “Acting One” (McGraw-Hill, 2001). Students are given the character analysis project one month before rehearsals start with the objective to work on gathering given circumstances about their character as they learn their role. All cast members are given the same project with guidelines about how to fill in information not provided by the score. A written analysis is due during the third week of rehearsals, which is required but ungraded. A third project is a reflection paper at the close of the production. This facilitates self-assessment and reflection which are central to the retention and assimilation of new ideas, and also serves as the assessment of the other two parts of the project. Students are asked to assess the process of preparing their character and learning to be on stage, interacting with others, in an operatic setting. A provided template directs the students to specifically address all activities that are a part of the research project. This paper will present the design, application, and assessment of new rehearsal techniques and activities that facilitate the rehearsal process as a long-term learning process rather than simply the means to a product. It is hoped

that the results of this research will aid other educators and directors in creating rich learning experiences for their students in a performance-based medium.

**TROMBONE ENSEMBLE PERFORMANCE.** Joshua Becker, Adam Boll, Adam Belliveau, Matt Caine, Rachel Carter, Mike Dunphy, Sean Freitag, Colin Gililand, Brad March, Randy Pingrey, Kenyon Schuerman, Heather Sessler, Matt Tiller, Mike Vallez, Corey Van Sickle, and Justin Verhasselt, undergraduate students, with Phillip Ostrander, faculty.

*Minnesota Music Educators Convention, Minneapolis, MN, 17 Feb. 2006.*

The UWEC Trombone Ensemble performed selected works from various composers at the annual convention for the Minnesota Music Educators Association. As a result of this performance, we will have the opportunity to be seen by many of the top educators in the state, some of whom may not be familiar with our program or the talent we have here. In short, this is an excellent recruiting vehicle, as many high school students will have an opportunity to see the Trombone Ensemble in performance, which could attract many talented high school musicians and students to our campus.

## NURSING

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**PUBLIC HEALTH CONTENT IN BACCALAUREATE NURSING - ALASKA, MINNESOTA, AND WISCONSIN.** Susan Karlman, Nicole Lange, and Kristin Brandenburg, undergraduate students, with Susan Moch, faculty.

*Midwest Nursing Research Conference, Milwaukee, WI, 31 March –2 April 2006.*

The purpose of this study was to identify public health content and teaching processes important for baccalaureate nursing education in three different states. Information was solicited from faculty and public health providers, and syllabi from the nursing schools were reviewed. The impetus for this study was a curricular assessment of public health content and processes in one nursing program. In fact, the nursing program faculty was in the process of engaging in dialogue with local and regional public health department staff about curricular revision in public health content. This study was undertaken to provide more information for future curricular revision. The design for the study was descriptive and involved an open-ended, researcher-designed interview tool for use with both nursing faculty and public health providers. The data were analyzed by summarizing content and teaching processes described through the interviews and through the syllabi. A summary of the findings is presented along

## *Nursing*

with reflections of the undergraduate student involvement in the process. Sharing the student experience may provide insight into the process of increasing interest in public health nursing.

**UNDERGRADUATE STUDENTS AND SECURING EVIDENCE.** **Jessica Branson**, undergraduate student, with **Susan Moch**, faculty.  
*9th Annual Oncology Nursing Society Conference, Hollywood, CA, 7-11 Feb. 2007.*

Undergraduate students have potential to be great partners for practicing nurses in securing evidence for practice. Undergraduate students know how to find evidence and have the ability to determine which articles staff nurses are most interested in reading. In addition, while gaining evidence for practice, the students learn about the importance of evidence-based practice for nursing. The goal of this project is to describe and evaluate student involvement in the New Knowledge Discussion Group process. The New Knowledge Discussion Model involves a contract with health care participants to read articles on an identified topic and to attend three of four group discussion sessions which are held two weeks apart. Groups are formed to gain current evidence/information on a topic selected by staff and twenty-one groups have previously been conducted and evaluated. Through two recent New Knowledge Discussion Groups, undergraduate student/faculty teams worked with nurses to find literature and to discuss articles on a topic of interest to the staff. Student involvement in the New Knowledge Discussion Group process was evaluated through summaries of a critical care unit group discussing visiting hours and a medical-surgical unit group discussing family involvement in palliative care. Student reflections on the process were also used for the evaluation. Two more New Knowledge Discussions are planned with oncology nursing staff and will be evaluated according to student involvement through group summaries and evaluative questions of staff and students. During the two group sessions with undergraduate students already conducted, the undergraduate students and the nurses discussed the articles and identified knowledge important for practice. Staff nurses asked the students how the articles were found and requested information on topics in addition to the discussion topic. Through participation in the discussions, students described the challenge of finding literature and feeling encouraged that nurses were interested in evidence. Student involvement in finding evidence for oncology nursing practice has great potential. Students have time and expertise to find evidence and staff nurses need evidence for practice. Further evaluation research related to student involvement in New Knowledge Discussion Groups will provide information on whether student involvement is effective with this particular model.

**PHILOSOPHY AND RELIGIOUS STUDIES**

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**THE PARADOX OF MARY: THE TELEVISION SERIES BUFFY: THE VAMPIRE SLAYER AS CASE STUDY.** Philip Kaveny, undergraduate student, with Lori Rowlett, faculty.

*Science Fiction Research Association Annual Conference, Las Vegas, NV, 23-26 June 2005.*

The purpose of this Study is to explore the representation of the perfection of the Virgin Mary as presented from both a traditional and contemporary Roman Catholic standpoint with particular emphasis on the work of radical Catholic theologian Kathleen Kaveny. Dr. Kaveny suggests that the character Buffy, the vampire slayer is presented in the seven-year hit television series as an exemplar of the virtues of the Virgin Mary and a model for Catholic womanhood. The questions to be addressed are these: Is Buffy in fact a liberating role model for Catholic womanhood? Is Dr. Kaveny's argument simply an example of an institutional co-option of a popular icon to be used as a tool of cultural terrorism and hegemonic oppression as might be suggested by Gramsci, Tompkins and others? Are there identifiable cultural indicators that help us to judge the extent of the Buffy influence on the spirituality or view of religion developed by individuals who were teenagers during its initial screening and what can they tell us? This paper will be informed to a large extent by an approach suggested by Eco in the essay "The Myth of Superman."

**PHYSICS AND ASTRONOMY**

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**COMPUTER MODELING OF X-RAY EMISSION AND ABSORPTION IN THE CONTEXT OF HOT STAR WINDS.** Casey Abing, undergraduate student, with Nathan Miller, faculty.

*207th Meeting of the American Astronomical Society, Washington D.C., 8-12 Jan. 2006.*

In support of ongoing studies of the X-ray emission from hot stars, we have been working on simulations of the X-ray output from mixtures of plasmas at wide ranges of temperature. These simulations have been carried out using the Spect3D, Spect3D Visualizer, and Plasma Grid Generator programs developed by Prism Computational Sciences. The Spect3D code allows construction of a plasma of arbitrary geometry and composition, and can then be used to calculate the observed spectrum for any direction of observation. Our initial studies have concentrated on simple geometric situations to build the foundations for

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more complicated spherical geometries. While the initial simulations used a mixture of hydrogen, helium, and oxygen, later simulations are including all important elements in their astrophysical abundances. We acknowledge support from Research Corporation, NASA grant GO4-5015B, and the University of Wisconsin-Eau Claire.

**CONNECTING X-RAY EMISSION LINE STRENGTHS TO PHYSICAL CONDITIONS IN HOT STAR WINDS.** **Andrew Johnson** and **Casey Abing**, undergraduate students, with **Nathan Miller**, faculty.

*A Symposium to Honor the Career of John Mathis: Dust, Abundances, and Line Diagnostics: Outstanding Problems and Questions, Madison, WI, 29-30 April 2006.*

We report the initial results from a project to model the X-ray emission regions of hot star winds using the Spect3D code developed by Prism Computational Sciences. This code allows detailed control of the density, temperature, composition, and geometry when constructing X-ray emission models for these objects. Our initial studies have concentrated on simple geometric situations to build the foundations for more complicated spherical geometries. For many of the elements present, emission is only seen from H- and He-like species, but for this phase of the project, we have especially focused on what can be learned from the lines of the wide range of iron ions represented. We acknowledge support from the Research Corporation and the University of Wisconsin-Eau Claire.

**DEVOLATILIZATION OF KUIPER BELT OBJECTS VIA COLLISION.** **Christopher Thompson**, **Bryce Cumming**, and **Steven Henke**, undergraduate students, with **Paul Thomas**, faculty.

*National Conference for Undergraduate Research, San Rafael, CA, 11-15 April 2007.*

The solar system's Kuiper belt is likely to contain many objects similar in size to Pluto. Pluto's composition, based on its mean density ( $2030 \text{ kg/m}^3$ ), is 60% rock and 40% ice. This composition is notably more rich in rock than typical outer solar system satellites, which have rock fractions of 40%. This work investigates the possibility that devolatilization (the removal of ice) of typical Kuiper Belt Objects (KBOs) may occur as a byproduct of large impacts. Our target KBO is represented as an object with a 40% rock mass fraction. The impactor is a cometary object composed entirely of ice. We model the collision of the target with a series of impactors, varying the impactor's size and angle. These impacts are simulated using a three-dimensional smoothed-particle hydrodynamics (SPH) code. For each impact, we analyze the fraction of ice thrown off from the target. The impact speed is the escape speed of the

target object ( $\sim 1.5$  km/s). Our simulations will constrain the critical impactor size and impact angle ranges required to increase the final rock mass fraction of the target to the 60% value observed for Pluto.

**FABRICATION OF COPPER INTEGRATED CIRCUIT INTERCONNECTS.** **Rachel Anderson**, undergraduate student, with **Kim Pierson**, faculty. *20th National Conference on Undergraduate Research, Asheville, NC, 6-9 April 2006.*

The purpose of this research is to develop a method of fabricating copper integrated circuit interconnects on silicon wafers by a process that may be used in industry. To increase the speed of integrated circuits, industry is replacing aluminum with copper as copper has a lower electrical resistance. Furthermore, to increase the density of components on an integrated circuit, these interconnects are designed as large aspect ratio trenches etched into the substrate. The aspect ratio is the ratio of the depth of the trench, to the height. We create these limited sputtering and long throw distance sputtering, with fewer complicated micro wires by filling the trenches with copper using a unique thin film deposition system. This deposition system has dual argon plasma arcs which not only allow the copper to be deposited, but also “resputter” the deposited film. This keeps the trench open during the deposition process, as well as help create the crystalline structure necessary for the efficient flow of electricity. Both the SEM (Scanning Electron Microscope) and the TEM (Transmission Electron Microscope) have been used to analyze the samples, allowing the quality of the deposition and crystalline structure of the films to be assessed. Results show that this project has been successful in replicating the promising results of col-steps, fewer system components, and a higher deposition rate.

**HYDROCODE SIMULATIONS OF IMPACTS IN THE OUTER SOLAR SYSTEM.** **Steven Henke**, undergraduate student, with **Paul J. Thomas**, faculty. *20th National Conference on Undergraduate Research, Asheville, NC, 6-9 April 2006.*

Imaging of the icy surfaces of outer solar system bodies by the Voyager, Galileo, and Cassini missions reveals an extensive history of bombardment, predominantly by comets. To analyze the detailed physics of such events, a Smoothed Particle Hydrodynamics (SPH) model was used to simulate the impact of a comet on an icy surface. The simulations permitted the analysis of impacts with varying speed, impactor size, and trajectory angle. One particular focus of this study was the extent of pyrolysis of pre-existing organic material in the icy target resulting from the impact shock. The role of impact destruction of organics in outer solar system bodies will be discussed.

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**HYDROCODE SIMULATIONS OF IMPACTS IN THE OUTER SOLAR SYSTEM.** Steven Henke, undergraduate student, with Paul Thomas, faculty. *Society for Industrial and Applied Mathematics (SIAM) Conference on Computational Science and Engineering 2007, Costa Mesa, CA, 19-23 February 2007.*

Imaging of the icy surfaces of outer solar system bodies by the Voyager, Galileo, and Cassini missions reveals an extensive history of bombardment, predominately by comets. To analyze the physics of such events, a Smoothed Particle Hydrodynamics (SPH) model was used to simulate the impact of a comet on an icy surface. One focus of this study was the extent of pyrolysis of pre-existing organic material in the icy target resulting from the impact shock.

**PASCAL'S BARREL.** Samantha Falkner, Dustin Kassel, and Jessica Plaunt, undergraduate students, with Paul Thomas and Matt Evans, faculty. *American Association of Physics Teachers and Society of Physics Students Meeting, Decorah, IA, 28-29 Oct 2005.*

Recreation of Pascal's "Bursting" Barrel which had originally been used to demonstrate air pressure. Our successful trial involved a rubbermaid storage container. Our final conclusion was that "bursting" should instead be billed as "unspectacular event of leaking".

**TRANSMISSION ELECTRON MICROSCOPY OF HIGH ASPECT RATIO INTEGRATED CIRCUIT INTERCONNECTS.** Benjamin J. Sykora, undergraduate student, with Kim Pierson, faculty. *American Association of Physics Teachers and Society of Physics Students Joint Meeting, Decorah, IA, 28-29 Oct. 2005;* *20th National Conference on Undergraduate Research, Asheville, NC, 6-9 April 2006.*

Integrated circuit interconnects are the micrometer or nanometer sized wires used to send electrical signals between various components of an integrated circuit. The continual demand for smaller and more powerful electronic devices force engineers to place more and more components on a smaller integrated circuit, thus limiting the space available for interconnects. To accommodate these spatial constraints, high aspect ratio interconnects are used (aspect ratio = depth/width). A number of techniques have been developed to aid in the successful fabrication of interconnects, each having advantages and disadvantages. Such techniques include collimation and Ion Beam Assisted Deposition (IBAD). The materials science center at UW-Eau Claire is currently investigating a simple and cost-effective method of fabricating high aspect ratio interconnects. Our method utilizes a physical vapor deposition (PVD) system with IBAD. Tantalum or Titanium boundary layers are also used to limit diffusion

and reaction of materials. Overall interconnect profile is demonstrated with scanning electron microscopy. Higher resolution images from transmission electron microscopy are used to determine grain boundaries and to verify the thickness of boundary layers.

## **PHYSICS AND ASTRONOMY/MATHEMATICS**

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**A THERMAL MODEL OF THE CRUST OF SATURN'S SATELLITE ENCELADUS.** **Joseph Kane, David Kincaid, Steven Henke, and Carolyn Otto**, undergraduate students, with **Marc Goulet, Alexander Smith**, Mathematics faculty, and **Paul Thomas**, Physics and Astronomy faculty. *SIAM Conference on Computational Science and Engineering 2007, Costa Mesa, CA 19-23 Feb. 2007.*

The icy terrain of the Saturnian moon, Enceladus, suggests a violent history of bombardment – a history which is actively overwritten by geological mechanisms. Thermal imaging of the southern polar region suggests heat flows beneath the ice may be responsible. Furthermore, an early 2006 flyby of NASA's Cassini spacecraft imaged water ice jetting from Enceladus' south pole. We investigate the effects of these suggested heat flows by modeling the thickness of Enceladus' surface ice layer.

## **POLITICAL SCIENCE**

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**A PRELIMINARY EXAMINATION OF ADOLESCENT MYSPACE PROFILES.** **Rebecca Mathias**, undergraduate student, with **Justin Patchin**, faculty.

*Midwestern Criminal Justice Association, Chicago, IL, 28-30 Sept. 2006.*

Although interacting with individuals via online social networking sites has multifold benefits, there have been numerous accounts of negative experiences arising from this form computer-mediated communication. Specifically, there have been instances where individuals have searched personal profiles available on MySpace for potential victims and have stalked, arranged meetings, and even sexually assaulted adolescents. Popular media has been quick to demonize MySpace, even though an exponentially small proportion of its over 90 million users have been victimized due to irresponsible or naïve usage of the technology it affords. The current study attempts to empirically ascertain the extent to which youth on MySpace are posting personal information online through an extensive content analysis of MySpace profile pages. Personal

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information is operationalized in the following ways: first name, full name, telephone number, postal address, email address, instant messaging screenname, city and state (if in the United States), and name of school. Other interesting findings from the research endeavor are discussed, as are implications stemming from adolescent participation in MySpace.

**COMPARATIVE SOCIALIZATION AND PARTICIPATION OF AMERICAN AND SWEDISH WOMEN.** **Hannah Lott**, undergraduate student, with **Margaret Gilkison**, faculty.

*Midwest Political Science Association Convention, Chicago, IL, 20-23 April 2006.*

This paper focuses on why the USA has a sizable gender gap between candidates and winners at election time. This paper will compare the USA to Sweden, where gender equity is the dominant pattern.

**PERSONAL INFORMATION OF ADOLESCENTS ON THE INTERNET: A QUANTITATIVE CONTENT ANALYSIS OF MYSPACE.** **Rebecca Mathias**, undergraduate student, with **Justin Patchin**, faculty, and **Sameer Hinduja**, Florida Atlantic University.

*44th Annual Meeting The Science of the Criminal Justice Science, Seattle, WA, 13-17 March 2007*

Although interacting with individuals via online social networking sites has multifold benefits, there have been numerous anecdotal accounts of negative experiences arising from this form of computer-mediated communication. Specifically, there have been instances where individuals have searched personal profiles available on MySpace for potential victims and have arranged meetings with, stalked, and even sexually assaulted adolescents. Popular media has been quick to demonize MySpace, even though an exponentially small proportion of its over 100 million estimated users have been victimized due to irresponsible or naïve usage of the technology it affords. The current study sought to empirically ascertain the extent to which youth are publicly posting identifying information through an extensive content analysis of randomly sampled MySpace profile pages. Results indicate that this problem may not be as widespread as many assumed and that the overwhelming majority of adolescents are using MySpace responsibly. Implications for continuing this trend are discussed.

**PUBLIC OPINION AND LEGAL CLOSURE: THE POLITICS OF LAW AND ORDER.** **Sally Trnka**, undergraduate student, with **Geoff Peterson**, faculty.

*Midwest Political Science Association Convention, Chicago, IL, 20-23 April 2006.*

The remarkable success of the television program *Law and Order* can be explained in a variety of ways, including ripped from the headlines stories, solid acting, and excellent writing. One aspect of the show that remains unexamined is the extent to which *Law and Order* serves as a form of legal catharsis for the viewing public. *Law and Order* has run dozens of episodes that clearly parallel real cases from the United States court system, but in nearly every case, the television show provides legal and moral closure that the actual cases did not. We believe the writers and producers of *Law and Order* simplify and distort the cases in order to create drama, but such modifications also give a sense of closure for the audience that they could not achieve in real life. We also believe that the writers and producers of the show take the views of their target demographic groups into account when determining the direction of the episode.

**UNDERSTANDING MUSLIM-AMERICAN POLITICAL OPINION IN THE POST 9-11 WORLD.** David Jacobs, undergraduate student, with Geoff Peterson, faculty.

*Midwest Political Science Association, Chicago, IL, 12-14 April 2007.*

This paper examines the dramatic shift in voter preferences among Muslim-Americans following the 9/11 and the US response to the attack. Our research clearly shows that an overwhelming majority of the Muslim Americans surveyed that reported voting for George W. Bush in 2000 voted against him in 2004.

## PSYCHOLOGY

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**ACCEPTABILITY OF CHILD DISCIPLINE: PASSIVE VERSUS AGGRESSIVE PUNISHMENT AND CHILD DEVIANCY.** Sarah Busse and James Dobbe, undergraduate students, with Blaine Peden, faculty.

*National Conference of Undergraduate Research, San Rafael, CA, 11-15 April 2007.*

The idea of how best to discipline children has been highly debated throughout the years. Researchers endeavor to determine the most appropriate as well as the most effective forms of discipline. The current study is a replication and extension of one performed for our research methods course. We assess opinions regarding the appropriateness as well as the effectiveness of both passive and aggressive forms of discipline of one's own and other's children. Participants rate situations, which portray either aggressive or passive forms of discipline for various aggressive forms of deviancy, such as hitting or kicking, deliberately disobeying adults rules, or talking back to adults. We anticipate

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finding a significant difference in the rating of aggressive forms of discipline as less acceptable and effective than passive forms of discipline when directed toward one's own children or the children of others. We also anticipate that individuals will view aggressive forms of discipline as more appropriate when directed towards one's own children rather than towards the children of others in all situations. Finally, individuals who view aggressive child behaviors will view aggressive punishments as more acceptable than those who see examples of children disobeying orders or talking back to adults. The study aims to attain the opinions regarding the appropriateness of child discipline, while minimizing social desirability. The study will encourage future research to take on a new perspective when searching for the most effective forms of child discipline.

**AN INTERVENTION FOR STEREOTYPIC TOE-WALKING IN A YOUNG GIRL WITH AUTISM: SELF-MONITORING AND DIFFERENTIAL REINFORCEMENT OF INCOMPATIBLE BEHAVIOR.** Amanda J. Bever, graduate student, Britta L. Fiksdal and Sarah Tillman, undergraduate students, with Kevin P. Klatt, faculty, and Karen R. Norman, ABIS, LLC.

*Mid-American Association for Behavior Analysis Conference, Madison, WI, 13-15 Oct. 2005; 32nd Annual Convention for the Association of Behavior Analysis, Atlanta, GA, 25-30 May 2006.*

Stereotypic toe-walking has been observed in normally developing children as well as children with developmental disabilities including autism. Relatively few studies have investigated the treatment of stereotypic toe-walking in children with autism, and no studies have explored the use of a self-monitoring device or differential reinforcement of incompatible behavior (DRI) as a treatment for toe-walking. The present study investigated the efficacy of a DRI procedure used in conjunction with a self-monitoring device to reduce stereotypic toe-walking in a 6 year-old girl with autism. A multiple-probe design across settings was used to demonstrate the effectiveness of the two procedures. The results showed a decrease in toe walking across both settings.

**ASSORTATIVE MATING AMONG DATING COUPLES: THE CASE AGAINST PHENOTYPIC CONVERGENCE.** Mark Remiker, Jonathan Baker, Allison Pike, and Erica Bodenstab, undergraduate students, with April Bleske-Rechek, faculty. *Human Behavior and Evolution Society 2006 Conference, Philadelphia, PA, 7-11 June 2006.*

Research on married couples has documented positive assortment on intelligence, attractiveness, values, and, to a lesser degree, personality; further, marital assortment has been linked with marital satisfaction. In the current study, we first tested the hypothesis that if partners mate assortatively (rather

than converge over time), then assortative mating coefficients for dating couples should be similar in magnitude to those found for married couples. Second, we investigated couple assortment on variables not previously studied, including sociosexual orientation, and the links between assortment and partners' relationship satisfaction. Thus, 50 heterosexual dating couples completed a variety of self-report measures and had their pictures taken for outsider attractiveness ratings. We found moderate assortative mating coefficients that endured after controlling for relationship duration. Partners also were moderately similar on sociosexual orientation and physical attractiveness. We discuss the importance of distinguishing between self-perceived similarity in attractiveness and other-rated similarity in attractiveness for predicting relationship satisfaction.

**ASSORTATIVE MATING: A PROSPECTIVE INVESTIGATION OF INDIVIDUAL AND RELATIONSHIP PREDICTORS OF COUPLE STABILITY.** Jonathan Baker, undergraduate student, with April Bleske-Rechek, faculty.

*Human Behavior and Evolution Society Conference , Williamsburg, VA, 31 May-3 June 2007.*

We report on the results of a prospective study of assortative mating among dating couples. In accord with the proposal that humans seek relationship partners who are similar to themselves rather than converge over time, at Time 1 we found that dating couples are as similar to each other as are married couples. Further, stronger couple assortment on political attitudes, self-esteem, envy, conscientiousness, and sexual strategy was associated with individuals' commitment to the relationship. At Time 2, 11 months later, we obtained data on 47 of 51 couples. Over 40% of the couples were no longer dating. Individuals' personality traits and attitudes did not predict relationship status, although relationship commitment at Time 1 did. Further, as expected, couples who were still together at Time 2 tended to be more similar at Time 1 than were those who had broken up.

**CLASSROOM CLICKERS: DIFFICULTIES, BEST PRACTICES, AND ENGAGING STUDENT CO-INVESTIGATORS.** David Hesse and Kevin Patton, undergraduate students, with Blaine Peden, faculty.

*Colloquium on the Scholarship of Technology and Learning, Madison, WI, 1-2 April 2006.*

Our panel concerns use of classroom clickers in a research methods course. A faculty member described moments of difficulty incorporating clickers into the classroom and the challenges entailed in assessing clicker outcomes within the framework of scholarship of teaching and learning. The students described preliminary research about the use of clickers versus "scratch-off"

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sheets in a simulated classroom and also discuss serving as co-investigators in scholarship of teaching and learning. Our panel session concluded with an open forum with the audience.

**COMPARING DIFFERENT PROMPTING PROCEDURES ON TEACHING NEW SKILLS TO CHILDREN WITH AUTISM.** Julie Ackerlund, Sarah Tillman, and Britta Fiksdal, undergraduate students, with Kevin Klatt, faculty.

*Mid-American Association for Behavioral Analysis, Madison, WI, 14-15 Oct. 2005.*

Various procedures have been used to teach new communication, social, and play skills to children with autism. One of the most common procedure-used in both analog and natural settings is the use of a prompt delay procedure. This procedure requires the teacher to give the child an instruction, followed by a prompt to help the child respond correctly, and then the prompt is faded across trials until the child responds independently. More recently, a simultaneous prompt procedure also has been used to teach new skills to children and adults with developmental disabilities. This procedure requires the teacher to provide an immediate prompt on all teaching trials. This procedure presumably prevents the child from making errors because the prompt is immediate. Although both procedures have been used successfully to teach new skills to persons with developmental disabilities, little research has been conducted comparing the two procedures or evaluating the effectiveness of either with young children with autism. The purpose of this study is to investigate the effectiveness of two types of constant prompt delay and the simultaneous prompt procedure in teaching new skills to young children diagnosed with autism.

**EFFECTS OF ANTIDEPRESSANT ADVERTISEMENTS ON SELF-PERCEIVED DEPRESSION: POSSIBLE INTERVENTIONS.** Karin Rasmussen and Andrea Lueck, undergraduate students, with Blaine Peden and William Frankenberger, faculty.

*Midwest Psychology Association Annual Meeting, Chicago, IL, 3-7 May 2006.*

Previous research indicates that antidepressant advertisements produced by pharmaceutical companies depresses college students (Frankenberger et al., 2004). In addition, students who read advertisements about antidepressants were significantly more likely recommend antidepressants for themselves and, in some cases, for others (Frankenberger et al.). The Frankenberger et al. study had too few male participants and a relatively small sample size. The present study replicates and extends the Frankenberger et al. (2004) study by using more adequate samples and investigating interventions that counter the depressing effects of antidepressant advertisements. Although there are many possible types of interventions, this study will utilize interventions that most

likely reflect available real-world information. Participants are given the Beck Depression Inventory II (BDI-II) to control for possible confounding effects related to participants who are clinically depressed. This study utilized four groups of participants. The first group acted as a control to ensure that the sample was not unduly biased towards negative or positive perceptions of antidepressants. The remaining two groups receive an intervention: the third group receives antidepressant ads, a handout containing information about the side effects of antidepressants, and the opinion survey whereas the fourth group receives the antidepressant ads, a lecture about the side effects of antidepressants, and the opinion survey. We anticipate that those participants who received the interventions containing information about the side effects of antidepressants will be less depressed and also view antidepressants as less appropriate for themselves and others (relative to the participants in Group 2). Future research should continue to investigate different forms of interventions and the advantages and disadvantages of each type of intervention.

**EFFECTS OF DAMGO AND DSLET IN RATS TRAINED TO DISCRIMINATE 22 FROM 2 HOURS FOOD DEPRIVATION.** Eric Ewan, Travis Smith, Adam Dunn, Andrew J. Kwilasz, Rachel Tham, and Lacey Stein, undergraduate students, with David Jewett, faculty, and M. K. Grace and A. S. Levine, University of Minnesota.

*Experimental Biology 2006, San Francisco, CA, 1-5 April 2006.*

Opioid agonists increase eating under a variety of conditions. We tested the effects of the mu-opioid agonist DAMGO and the delta-opioid agonist DSLET in rats trained to discriminate 22 hours food deprivation from 2 hours food deprivation in a two-lever, operant choice task. After rats acquired the discrimination, subjects were food restricted for 2 hours and responded appropriately. Immediately after the response period, rats were injected in the paraventricular nucleus of the hypothalamus (PVN) with saline (0.5  $\mu$ l), DAMGO (0.1- 3 mol), DSLET (0.1-3 nmol), or neuropeptide Y (NPY; 0.8 nmol). One hour later, the discriminative stimulus effects were assessed. DAMGO and DSLET did not induce discriminative stimulus effects similar to 22 hours food deprivation at doses previously demonstrated to increase eating when food is freely available. As previously demonstrated, NPY inducted discriminative stimulus effects similar to those of 22 hours food deprivation. These findings are consistent with hypotheses that 1) in the PVN, mu-, and delta-agonists increase food intake by increasing meal duration rather than initiating eating and 2) NPY administered into the PVN appears to increase food intake by initiating eating.

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### **EFFECTS OF DAMGO AND DSLET IN RATS TRAINED TO DISCRIMINATE 22 FROM 2 HOURS FOOD DEPRIVATION.**

**T.R. Smith, J.M. Wiebelhaus, A.J. Kwilasz, R.L. Tham, E.E. Ewan, and L.J. Stein**, undergraduate students, with **Daniel Holt** and **David Jewett**, faculty, **M.K. Grace**, VA Medical Center, Minneapolis, MN, and **Allen Levine**, University of Minnesota..

*Society for Quantitative Analyses of Behavior, San Diego, CA, 24-29 May 2007.*

We tested the effects opioids on rats' discrimination between 22 and 2 hour food deprivation. Following acquisition, rats were placed under 2 hour deprivation conditions and injected in the hypothalamus (PVN) with either saline, the mu-agonist DAMGO, the delta-agonist DSLET, or the non-opioid neuro-peptide Y (NPY). At doses previously demonstrated to increase eating when food was freely available, DAMGO and DSLET did not induce discriminative stimulus effects similar to 22 hours food deprivation. Previously we determined NPY-induced discriminative stimulus effects were similar to those of 22 hours food deprivation. The opioid antagonist naltrexone did not reduce the discriminative stimulus effects of either 22 hour deprivation or NPY. The findings are consistent with the hypothesis that mu- and delta-agonists increase food intake by increasing meal duration and that NPY administered into the PVN appears to increase food intake by producing discriminative stimuli similar to 22 hours food deprivation and initiating eating when food was freely available, DAMGO and DSLET did not induce discriminative stimulus effects similar to 22 hours food deprivation. Previously we determined NPY-induced discriminative stimulus effects were similar to those of 22 hours food deprivation. The opioid antagonist naltrexone did not reduce the discriminative stimulus effects of either 22 hour deprivation or NPY. The findings are consistent with the hypothesis that mu- and delta-agonists increase food intake by increasing meal duration and that NPY administered into the PVN appears to increase food intake by producing discriminative stimuli similar to 22 hours food deprivation and initiating eating.

### **EFFECTS OF A HIGH-FAT, HIGH-CARBOHYDRATE DIET OR CORN OIL ON THE DISCRIMINATIVE STIMULUS EFFECTS OF 22-HOURS FOOD DEPRIVATION.**

**J. Wiebelhaus, R. Tham, A. Kwilasz, T. Hahn, T. Smith, N. Kramer, E. Mack-Olson, T. Schweiner and M. Schneider**, undergraduate students, with **D.C. Jewett**, faculty, **M.K. Grace**, VA Medical Center, Minneapolis, MN, and **A.S. Levine**, University of Minnesota.

*Neuroscience 2006 Annual Meeting, Atlanta, GA, 14-18 Oct. 2006.*

We trained rats to discriminate between 2 and 22 hours of acute food deprivation in an operant choice paradigm. In the present study, rats food

deprived for 22 hours were given 20 min access to a high fat/high sucrose diet (mean consumption 7.2 g). The diet eliminated the discriminative stimulus (SD) effects produced by 22 hr food deprivation. Prior to other tests, rats were 22 hr food deprived and given access to corn oil solutions prior to the experimental session (20 min, or 2 hr before the session began). Consumption of corn oil produced a modest reduction in the SD effects of 22 hours food deprivation. Following 20 min or 2 hr access to 100% corn oil (mean consumption 4.0 g and 7.5 g respectively), corn oil reduced the SD effects of food deprivation by about 50%. A smaller concentration of corn oil (15%) produced a similar magnitude of this effect when the solution was made available for 2 hr (mean intake 9.3 g). These discriminative stimulus effects may be sensitive to factors altering food consumption and may serve as a model to examine dietary factors that alter internal states associated with eating.

**EFFECTS OF FOOD, SUCROSE, AND SACCHARIN ON THE DISCRIMINATIVE STIMULUS EFFECTS PRODUCED BY 22 HOURS FOOD DEPRIVATION.** Andrew Kwilasz, Jason Wiebelhaus, Tracy Schweiner, Regina Carroll, Thomas Hahn, Emily Mack-Olson, and Adam Dunn, undergraduate students, with David Jewett, faculty, and M.K. Grace and Allen Levine, University of Minnesota.

*Faculty for Undergraduate Neuroscience and Society for Neuroscience Convention, Washington D.C., 12-16 Nov. 2005.*

Rats were trained to discriminate between 2 and 22 hrs of acute food deprivation in an operant choice paradigm. During generalization tests, the discriminative stimulus effects of 2 and 22 hour deprivation were assessed. These discriminative stimulus effects remained stable throughout the 2 hour generalization test. During other tests, subjects were food deprived for 22 hours. One hour prior to these tests, food (Teklad laboratory chow) or a solution of saccharin (0.032 – 3.2%) or sucrose (0.32 – 32%) was made available. Food consumption completely eliminated the discriminative stimulus effects of 22 hour deprivation. Saccharin (0.032 – 3.2%) did not appreciably alter the effects of 22 hr deprivation. Larger sucrose concentrations (10 – 32% sucrose) reduced the effects of 22 hr food deprivation by approximately 50%. The effects of 10% sucrose were of shorter duration than those of 32% sucrose. Smaller concentrations of sucrose (0.32 – 3.2%) were consumed, but did not alter the discriminative stimulus effects of 22 hours deprivation. Larger sucrose concentrations resulted in both a larger volume consumed and greater caloric intake than increases in volume and caloric intake produced by food, indicating the ability of food to alter the discriminative stimulus effects of 22 hours food deprivation are due to other factors.

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**EFFECTS OF OPIOIDS IN RATS TRAINED TO DISCRIMINATE 22 FROM 2 HOURS FOOD DEPRIVATION.** **Thomas W. Hahn, Britta L. Fiksdal, Rachel L. Tham, Jason M. Wiebelhaus, Andrew J. Kwilasz, and Travis R. Smith**, undergraduate students, with **David C. Jewett**, faculty, **Martha K. Grace**, Research-VA Medical Center (Minneapolis, MN), and **Allen S. Levine**, University of Minnesota.

*Experimental Biology 2007 Conference, Washington, DC, 27 April-2 May 2007.*

Opioid agonists produce modest increases in food intake in several species. We examined the effects of centrally-administered, opioid agonists in rats trained to discriminate between 22 and 2 hour food deprivation in an operant choice task. Previously we showed that neuropeptide Y and ghrelin induced discriminative stimulus effects similar to 2-hours food deprivation. In the present study we asked if opioid agonists would induce similar effects. After acquisition of the deprivation discrimination, rats were food restricted for 2 hours and injected with doses of DAMGO, DSLET, or orphanin previously shown to reliably increase food intake. All injections were made into the paraventricular nucleus on the hypothalamus (PVN). DAMGO, DSLET, and orphanin did not produce 22-hour deprivation-like discriminative stimulus effects. We also examined the ability of the opioid antagonist naltrexone to modify the discriminative stimulus effects of 22 hours deprivation. Although the opioid antagonist naltrexone reduces deprivation and NPY-induced feeding, naltrexone (0.3-10 mg/kg, s.c. or 1 to 10 µg, PVN) did not affect the discriminative stimulus effects of 22-hours food deprivation or the effects of NPY. To date, we have found opioids to produce different effects than NPY or ghrelin in rats trained to discriminate between 2- and 22-hours food deprivation. Our findings suggest drug discrimination techniques may be useful in assessing factors regulating feeding. Supported by UW-Eau Claire Faculty/Student Research Collaboration, NIH, and the Department of Veterans Affairs.

**ETHICAL CONSIDERATIONS REGARDING UNDERGRADUATE TEACHING ASSISTANTS.** **Libby Melsness** and **Joseph F. Milburn**, undergraduate students, with **Blaine Peden**, faculty.

*National Conference on Undergraduate Research, San Francisco, CA, 9-13 April 2007.*

Keith-Spiegel et al. (2001) noted that graduate teaching assistants (GTAs) have an ambiguous role within higher education because they are neither just students nor independent educators. Ethically ambiguous roles produce the potential for ethical infractions and previous research indicates high risks of unethical behavior for GTAs (Branstetter & Handelsman, 2000). Many of the same concerns and issues also apply to undergraduate teaching assistants

(UTAs). We, however, have found no published studies regarding ethics and UTAs. Our online survey of 196 undergraduates collected (a) demographic information about students serving as UTAs and having UTAs in their courses, (b) assessed participants' attitudes regarding the ethicality of 70 actions of UTAs (after Branstetter & Handelsman, 2000; Keith-Spiegel, et al., 2001), and (c) determined participants' attitudes regarding online surveys. Our analysis indicated three categories: (a) actions rated as ethical, (b) actions rated as unethical, and (c) actions that were difficult to judge. Our analysis depicted smaller numbers of the scenarios that were identified as either definitely ethical ( $n = 5$ ) or unethical ( $n = 26$ ) by a majority of the participants. On the other hand, our results indicated that a majority of the participants did not agree whether the remaining 39 actions were ethical or unethical. Further analysis revealed that the disagreements concerning ethical actions often depended on whether participants had prior experience as a UTA or with a UTA, but not variables such as sex of participant or year in school. Participants also responded to questions assessing their opinions in regards to online survey methods. Our research provides some provocative data in a neglected area of academic ethics. Our findings may help to improve conditions for UTAs and the students they serve and also promote the ethical awareness and sensitivities of the faculty who mentor UTAs.

**GETTING BOTH SIDES OF THE STORY: SEXUAL ATTRACTION AND SEXUAL EVENTS BETWEEN OPPOSITE-SEX FRIENDS.**

**Lindsay K. Matteson, Brittany I. Gragg, and Corey S. Stocco**, undergraduate students, with **April Bleske-Rechek**, faculty.

*Human Behavior and Evolution Society Conference, Philadelphia, PA, 7-11 June 2006.*

Debate exists on whether opposite-sex friends experience sexual attraction to one another and, if so, whether that attraction adds spice or strife to the friendship. Little systematic research, however, has evaluated these questions; and existing studies have not asked for both friends' perspectives. In the current study, 89 pairs of young adult opposite-sex friends (mean friendship duration = 2 years) reported on their friendship. Men reported more sexual attraction to their friends than did women, and this sex difference endured after controlling for men's greater sexual unrestrictedness. Approximately 25% of friendship pairs had romantically kissed, and over 10% had "fooled around." Attraction to friend was not related to friendship duration, and sexual events occurred at various time points in the friendship, suggesting that attraction to friends isn't something that is "overcome" with time. We discuss our findings in the context of mainstream literature suggesting that opposite-sex friendships are inherently platonic.

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**A LITERATURE REVIEW FOR PROMPTING PROCEDURES USED TO TEACH SKILLS TO CHILDREN WITH AUTISM.** Corey Stocco, undergraduate student, with **Kevin Klatt**, faculty.

*Association for Behavior Analysis International, San Diego, CA, 24-29 May 2007.*

When teaching skills to people with autism, teachers often prompt the person with the right answer. There are several prompting procedures that a teacher may use, including simultaneous prompting and the constant prompt delay. Research has been conducted showing both procedures can be used to teach a variety of skills to persons with autism. This study is a review of the literature for both procedures for children diagnosed with autism. The review will compare and contrast several variables including skills taught and results. Specific suggestions regarding each procedure along with ideas for future research will be discussed.

**(MALE) NARCISSISTS THINK THEY'RE ATTRACTIVE – AND THEY ARE.** Jonathan Baker, undergraduate student, with **April Bleske-Rechek**, faculty.

*Human Behavior and Evolution Society Conference, Williamsburg, VA, 31 May-3 June 2007.*

Men who pursue an unrestricted sexual strategy also score high in narcissism; they have an inflated sense of beauty and dominance and are willing to exploit others. Given that men can pursue an unrestricted sexual strategy more easily if they are highly attractive, it is possible that narcissistic men actually are highly attractive. We tested this prediction with a sample of 51 dating couples. Men who scored high on behavioral measures of sexual unrestrictedness also scored high in narcissism, and rated themselves as more attractive and as more desirable short-term sex partners (but not as more desirable long-term partners). As predicted, outside judges rated narcissistic men, but not narcissistic women, as more attractive.

**MID-AMERICAN ASSOCIATION FOR BEHAVIOR ANALYSIS (MABA).** Nicholas Vanselow, undergraduate student, with **Kevin Klatt**, faculty, **Ruth Anne Rehfeldt**, Southern Illinois University, and **Jeffrey N. Weatherly**, University of North Dakota.

*Association for Behavior Analysis Annual Convention, San Diego, CA, 24-29 May 2007.*

The Mid-American Association for Behavior Analysis (MABA) is an affiliated chapter for persons interested in basic and applied behavior analysis. The MABA organization holds an annual convention each fall. Behavior analysts can learn more about the organization at the ABA Expo.

**PROCESS IMPROVEMENT IN A CLINIC SETTING: AN APPLICATION OF OBM.** Chelsey Sutton and Karin Rasmussen, undergraduate students, with Kevin Klatt, faculty.

*Mid-American Association for Behavior Analysis Convention, Madison, WI, 13-15 Oct. 2005;*

*2006 Association for Behavior Analysis Convention, Atlanta, GA, 25-30 May 2006.*

Research clearly indicates that the appropriate conveyance of expectations and goals is a necessary factor in the ability of an organization to perform at its highest level. The current study analyzed the influence of standardized forms and feedback on the improvements in work output, speed, and accuracy in a medical clinic setting. The goal of the study was to increase the speed with which lab orders were processed relative to the time in which they were ordered. The use of standardized lab order forms as well as regular graphic and textual feedback on progress made was utilized to determine their effects on the accuracy and speed of lab request processing in several departments within the clinic. The effects of the intervention were evaluated using a multiple-baseline design across departments, and visual analysis of the data revealed significant improvements in accuracy and speed of processing.

**PROCESS IMPROVEMENT IN A CLINIC SETTING: AN APPLICATION OF OBM (APPLIED BEHAVIOR ANALYSIS).** Chelsey A. Sutton, Emily J. Mack-Olson, and Karin L. Rasmussen, undergraduate students, with Gregory J. Madden and David Jewett, faculty.

*Faculty for Undergraduate Neuroscience and Society for Neuroscience Convention, Washington D.C., 12-16 Nov. 2005;*

*2006 Association for Behavior Analysis Convention, Atlanta, GA, 25-30 May 2006.*

Research clearly indicates that the appropriate conveyance of expectations and goals is a necessary factor in the ability of an organization to perform at its highest level. The current study analyzed the influence of standardized forms and feedback on the improvements in work output, speed, and accuracy in a medical clinic setting. The goal of the study was to increase the speed with which lab orders were processed relative to the time in which they were ordered. The use of standardized lab order forms as well as regular feedback on progress made was utilized to determine their effects on the accuracy and speed of lab request processing. The effects of the intervention were evaluated using a multiple-baseline design across departments

**RATES OF INFORMATION DISCLOSURE ON INTERNET SOCIAL NETWORKING SITES: MYSPACE AND FACEBOOK.** Andrea F. Lueck and Ross A. Auna, undergraduate students, with Blane Peden, faculty.

## **Psychology**

*Midwestern Psychological Association Annual Meeting, Chicago, IL, 3-5 May 2007.*

Profiles on two social networking sites (MySpace and Facebook) were observed to determine how much personal information was being disclosed and how the rate of disclosure is influenced by gender and site. Implications with regard to safety and the dangers of posting personal information on the web are discussed.

**A REVIEW OF NATURALISTIC TEACHING STRATEGIES ON THE ACQUISITION OF SKILLS IN CHILDREN WITH AUTISM.** **Nicole K. Berning** and **Sara L. Czekalski**, undergraduate students, with **Kevin P. Klatt**, faculty.

*32nd Annual Convention for the Association of Behavior Analysis, Atlanta, GA, 25-30 May 2006.*

Within Applied Behavior Analysis there are several techniques/ models for teaching children with autism. These models range from analogue settings to more natural setting. However, several procedures are commonly used within and across behavioral models, thus making it difficult to discriminate between them and decide which is most effective for treating children with autism. The purpose of this paper is to investigate the main procedures, the origin of procedures, and research support for each model. The major models analyzed and compared in this paper include; Discrete trial training, Natural Language Paradigm, Pivotal response training, Incidental teaching, Milieu teaching, SPEAK, and MITS.

**SELF-FRIEND AGREEMENT AND ASSORTMENT IN SAME-SEX FRIENDSHIP: WHY SEXUAL STRATEGY MATTERS.** **Stephanie Preder**, **Kelsey Fasteland**, **Emily Wiechmann**, and **Marla Wojtanowicz**, undergraduate students, with **April Bleske-Rechek**, faculty.

*Human Behavior and Evolution Society Conference, Philadelphia, PA, 7-11 June 2006.*

Same-sex friends are unique in their potential to both facilitate mating (e.g., through networking) and impede mating (e.g., through rivalry). If humans have an evolved friendship psychology that guides the selection of friends who facilitate rather than impede mating, then they should demonstrate sensitivity to the sexual strategy their friends pursue. In the current study, we investigated self-friend agreement and assortment on sexual strategy among 43 male and 99 female same-sex friendship pairs. Men, and especially women, showed high self-friend agreement on sexual strategy. High agreement coefficients endured after controlling for assortment on sexual strategy; and near-zero correlations among numerous sets of randomly constructed friendship pairs suggest the

friendship correlations are valid. Female but not male friendship pairs demonstrated moderate assortment on sexual strategy. We discuss potential links between degree of assortment on sexual strategy and women's perceptions of friendship trueness, friendship stability, and rivalry in the friendship.

**SELF-OTHER AGREEMENT AND ASSORTMENT IN SAME-SEX FRIENDSHIP: WHY SEXUAL STRATEGY MATTERS.** Kelsey Faste-land, undergraduate student, with April Bleske-Rechek, faculty.

*Human Behavior and Evolution Society 2006 Conference, Philadelphia, PA, 7-11 June 2006.*

Same-sex friends are unique in their potential to both facilitate mating (e.g., through networking) and impede mating (e.g., through rivalry). If humans have an evolved friendship psychology that guides the selection of friends who facilitate rather than impede mating, then they should demonstrate sensitivity to the sexual strategy their friends pursue. In the current study, we investigated self-friend assortment and agreement on sexual strategy among 99 female same-sex friendship pairs, using 43 male friendship pairs as a comparison group. Female but not male friendship pairs demonstrated moderate assortment on sexual strategy. Men, and especially women, showed high self-friend agreement on sexual strategy; this agreement endured after controlling for assortment on sexual strategy; and near-zero correlations among numerous sets of randomly constructed friendship pairs suggest the friendship correlations are valid. Results also showed that, when controlling for assortment, sexual strategy predicted the degree of self-friend disagreement on the sociosexual orientation inventory. We discuss potential links between women's sexual strategy and the prevalence of deception or information withholding in female friendship pairs.

**STUDENTS' VIEWS REGARDING SUCCESS IN AN ONLINE PSYCHOLOGY COURSE.** Allison Bol and Katherine Cowden, undergraduate students, with Blaine Peden, faculty.

*Psi Chi Midwestern Regional Convention, Chicago, IL, 3 May 2007 and Innovations in the Scholarship of Teaching and Learning at the Liberal Arts College, Northfield, MN, 16-18 Feb. 2007.*

This study examines the learning strategies of psychology students in an upper level undergraduate course. This study also compares the high scoring and the low scoring students to determine the relationship between study strategies and the total point score. The present study replicates and extends the work of Kathleen Mckinney (2004) who examined the study skills of Sociology majors. Although there are many studies concerning introductory level Psychology courses (Sankaran, Sankaran, & Bui, 2000, Smith, 2005 Waschull, 2001), there have not been many studies of students in upper level Psychology

## *Psychology*

courses, including online courses. Also, many evaluations of achievement have been based on exam scores, whereas this study assesses exam scores as well as self-assessments by the students themselves.

The rationale for conducting this study is to determine if there are specific study strategies for successful learning in an upper level online Psychology course. This information could benefit future teachers when designing an online course. It could also benefit future students of an online course by identifying some of the successful learning strategies of more and less successful students.

**THE USE OF PROMPTING STRATEGIES TO TEACH SKILLS TO CHILDREN DIAGNOSED WITH AUTISM.** Sara M. Weinkauff, Julie A. Ackerlund, Corey Scot Stocco, Jennifer Lynn Bechtold, Claire Anderson, Nicholas R. Vanselow, and Carrie Haessly, undergraduate students, with Kevin Klatt, faculty.

*Association for Behavior Analysis, San Diego, CA, 24-29 May 2007.*

Recent research has shown that both the simultaneous prompting and the constant prompt delay procedures can be used to teach skills to children with autism. The simultaneous prompting procedure involves the teacher providing an immediate prompt on all teaching trials, whereas the constant prompt procedure requires the teacher to give the child an instruction, followed by a prompt to help the child respond correctly, and then the prompt is faded across trials until the child responds independently. Data presented last year showed children with autism learned skills in less trials with the constant prompt delay, but made less errors with the simultaneous prompt procedure. The purpose of the current research is to investigate whether a procedure that combines features from both the simultaneous prompt and constant delay can be used to teach new skills, and whether the new procedure will result in learning in fewer trials and with fewer errors than either the simultaneous prompt or constant prompt delay procedures.

**USING BEHAVIORAL PROCEDURES TO TEACH VOCAL VERBAL BEHAVIOR TO YOUNG CHILDREN WITH AUTISM.** Regina Carroll, Sara M. Weinkauff, and Britta L. Fiksdal, undergraduate students, with Kevin P. Klatt, faculty.

*32nd Annual Convention for the Association of Behavior Analysis, Atlanta, GA, 25-30 May 2006.*

This study assessed the effects of a stimulus-stimulus pairing procedure that paired a sound with a preferred stimulus to condition automatic reinforcement and increase vocalizations for two children with autism. This study failed to replicate the results of a study done by Miguel et al. (2002) that used a

## *Public Health Professions/Music and Theatre Arts*

stimulus-stimulus pairing procedure to increase vocalizations for two of three children with autism that participated in the study. A study conducted by Esch et al. (2005) was unable to replicate the effects of the stimulus-stimulus pairing procedure done by Miguel et al (2002). In addition to the study done by Miguel et al. (2002) this study also assessed the effects of a direct reinforcement procedure on an increase of vocalizations.

### **THE USE OF LINGUISTIC INQUIRY AND WORD COUNT (LIWC) TO UNDERSTAND HOW UNDERGRADUATE COLLEGE STUDENTS LEARN THE APA STYLE.** Amy Verburg, Elizabeth Aspinwall, and Adam Anderson, undergraduate students, with Blaine Peneden, faculty.

*National Conference of Undergraduate Research, San Francisco, CA, 12-15 April 2007.*

This study will measure how undergraduate college students learn to write in the American Psychological Association writing format. Comparisons will be made between the classes Psychology as a Discipline and Profession (PSYC 100 level psychology course), Research Methods (200 level psychology course), and Senior Research Seminar (400 level psychology course). Psychology as a Discipline and Profession is where students first learn how to write in the APA format. We are interested in studying how students learn the APA format through text analysis. To assess how linguistics specifically improve, a text analysis software program will be used. LIWC (Linguistic Inquiry and Word Count) developed by James W. Pennebaker, Roger J. Booth, and Martha E. Francis will be used to compare linguistic patterns of students. LIWC is a computer program which measures the amount of positive and negative emotion words, as well as hedge words, which will allow us to measure the proficiency in writing in the APA format as we expected that fewer emotion words in addition to hedge words would be present in upper-level APA papers. This study expands the findings for learning sociology studied by Kathleen McKinney and we expect to find similar learning strategies.

## **PUBLIC HEALTH PROFESSIONS/MUSIC AND THEATRE ARTS**

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### **ASSESSMENT OF CONTENT FOR CLINICAL APPLICATIONS FOR PERCUSSION TECHNIQUES IN MUSIC THERAPY.** Hana Dehtiar, undergraduate student, with Lee Anna Rasar, faculty, Public Health Professions, and Jeffery Crowell, faculty, Music and Theatre Arts.

*Great Lakes Region of American Music Therapy Association Music Therapy Conference, Novi, MI, 24 March 2006.*

## *Public Health Professions/Music and Theatre Arts*

Content for this course includes historical information about instruments and ethnic origins and roles as well as demonstrations for how to play the instruments. Performance exams and integration of ethnic patterns into therapeutic session plans for a variety of populations will be used for grading. Care and maintenance of as well as tuning equipment, adaptations for both accessibility and to target problem areas to meet therapeutic goals, and making homemade instruments will be included. Use of the basic drum set, auxiliary instruments, including ethnic specific instruments and instruments with special sounds effects and auditory appeal will be presented for use with therapeutic session plans with people with reactive attachment disorders, autism spectrum disorder, dementia, developmental disabilities, communication disorders, hearing impairments, learning disabilities, ADD/ADHD, physical disabilities, and Parkinson's Disease (specifically included due to the effect of rhythm on functional skills). Working with gifted and talented students and with the forensic population will also be addressed as well as building a therapeutic playground and designing healthy sonic environments and stimulation rooms for people with special therapeutic needs. Ethnic comparisons between Brazilian percussion, Afro-Cuban music, and Hispanic music will enable students to reach patients from these cultural backgrounds and to understand how to design and present music from these different ethnicities. Cueing procedures and structures to help patients participate and to obtain and maintain attention in music making will be examined through African drumming techniques. Use of call-and-response, programmatic music, solo/turn-taking, and ensemble playing will be examined with respect to therapeutic goals. Layering techniques will be explored through the use of family claves. Students will learn ragtime, Dixieland, rock, swing, blues, patriotic, polka, waltz, and rap accompaniment styles. Body and vocal percussion as well as harmonic structures to allow for accessibility without respect to disability areas and to allow patients to play with no wrong-notes (modes, pentatonic, major 7 chords, etc.) will be included. The course will address considerations when choosing instruments to purchase and recommendations of resources available for equipment and grant funding.

### **PUBLIC HEALTH PROFESSIONS**

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**DEVELOPMENT OF A PERCUSSION TECHNIQUES COURSE SPECIFICALLY FOR USE IN MUSIC THERAPY.** Hana Dehtiar, undergraduate student, with Lee Anna Rasar, faculty.

*American Music Therapy Association National Conference, Kansas City, MO, 16-19 Nov. 2006.*

This session presented a description of content possibilities for a

course for music therapy majors to learn to make clinical applications for percussion techniques. The consideration of various techniques which were considered for inclusion in the teaching modules and the resulting choices of content for this new course were described. Applications for assessment and implementation of programming were presented for people with dementia, developmental disabilities, autism spectrum disorder, physical disabilities, hearing impairments, learning disabilities, attention deficit/hyperactivity disorder, attachment disorders, problems with anger management, and communication disorders. Documentation of rhythm patterns associated with specific cultures and adaptations for the presentation of these patterns were included. Ideas for inclusion of homemade instruments and involvement of clients in creating instruments and activities were presented.

### **MUSIC THERAPY FOR PEOPLE WITH ATTACHMENT DISORDERS.**

**Melissa Sommers** and **Sara Wallace-Tomczak**, undergraduate students, with **Lee Anna Rasar**, faculty.

*7th Annual American Music Therapy Association Conference, Orlando, FL, 17-20 Nov. 2005.*

This presentation involved an Overview of Use of Music with People with Attachment Disorders presented by Lee Anna Rasar. Symptoms, causes, neurological problems and treatment models and specific neurological programming using music to target goal areas were included.

Melissa Sommers presented on the clinical application of percussion activities with people with Attachment Disorders. Sara Wallace-Tomczak presented a personal perspective on Attachment Disorders with a discussion of the development of an attachment disorder in a family member secondary to following recommendations from a book about putting young children on a schedule.

The presentation also included a history of the development of the attachment disorders program in music therapy in Eau Claire and about funding this Music Therapy Programming. The session ended with a question and answer period.

**PERCUSSION TECHNIQUES: CLINICAL APPLICATIONS FOR ETHNIC DIVERSITY AND ACCESSIBILITY FOR ALL POPULATIONS.** **Hana Dehtiar** and **Megan Hoffman**, undergraduate students, with **Lee Anna Rasar**, faculty.

*Great Lakes Region Music Therapy Conference, Cleveland, OH, 22-25 March 2007.*

This session presented African, Afro-Cuban, and Hispanic beats for accompaniment use in music therapy sessions. Participants learned to perform

## *Sociology*

beats for sambas, bossa nova, cha- cha – cha, tango, beguine, rock, disco, and swing music as well as various accompaniments to incorporate with waltz and march music. Instruments from a variety of cultures were presented with explanations about the musical background and the role of these instruments and the general role of music within the different cultures. Tonalities used in Asian and Native American music were presented with experiential involvement for participants. The use of layering the clave beats within Spanish music involved hands-on performance. Suggestions for making homemade instruments were presented and samples of these instruments were shown. Percussion applications specific to clinical goals in music therapy were presented for people with a variety of disabilities, including but not limited to autism spectrum disorder, dementia, reactive attachment disorder, communication disorders, Parkinson's Disease, Huntington's Disease, movement disorders in general, stroke, learning disabilities, ADD/ADHD, and cognitive disabilities in general. Special considerations for use of percussion activities in forensic settings were included. Therapeutic programming for specific meters, harmonies, timbres, compositional structures, and improvisational techniques were demonstrated and incorporated into live improvisational activities designed and led by participants. Principles of Neurologic Music Therapy and descriptive terms for use in documentation were included.

## **SOCIOLOGY**

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**“LOOK HONEY! OUR WAITRESS IS A HE”:** GENDER RELATIONS IN RESTAURANT SERVING. Paul Nikstad, undergraduate student, with Pamela J. Forman, faculty.

*Midwest Sociological Society 2006 Annual Meeting, Omaha, NE, 30 March-2 April 2006.*

Despite women's inroads into many occupations that were formerly male-dominated, serving at low-prestige restaurants continues to be primarily performed by women. Because women have conducted many of the prior qualitative studies, we devised a study primarily conducted by a man with both experience as a server and a cook. Nikstad's informants knew that he was interested in a sociological perspective of the serving industry as he conducted one month of participant observation at the family-style restaurant where he worked. Then, he conducted focus groups with three groups of servers, which were videotaped. We used a grounded theory approach (Glaser and Strauss 1967) to code the transcriptions of the focus groups using a qualitative analysis program called Atlas.ti. We evaluate how low-level restaurant employees negotiate their gender and sexual identities in their positions as servers. Our case

study of the strategies used by female and male servers raises interesting points about the construction of gender, sexuality, and power in restaurant serving.

**THE ROLE OF EXPECTATIONS FOR FUTURE FAMILY OBLIGATIONS IN CAREER CHOICE FOR MEN AND WOMEN.**

**Emily J. Cooper, Ashley N. Vacha, and Amanda L. Albert**, undergraduate students, with **Melissa Bonstead-Bruns**, faculty.

*Midwest Sociological Society Annual Meeting, Chicago, IL, 3-6 April 2007.*

*National Conference on Undergraduate Research, San Rafael, CA, 11-15 April 2007.*

Studies indicate that women are still entering careers that have traditionally been dominated by females, even though they now have a greater opportunity to enter more male-dominated careers. One possible explanation might be the continued impact of traditional gender role expectations—specifically the persistence of the belief that women should be tied to the domestic sphere. It has been suggested that these old notions still permeate the construction of gender today. If so, then it is likely that women's career decisions will still be guided by the expectation that they will have certain career-related needs associated with having a family and time to raise children. Using an online survey, we gather responses from students at a mid-sized Midwestern university. The survey asks questions about the respondents' current family, major, and future plans for career and family. It also includes a set of vignettes designed to get subjects' views about the relationship between future family plans and career choice applied more broadly. That is, looking at their gender-related views about career and family as they relate to men and women in general, which may or may not vary from the personal choices they make for themselves. We expect that women will be more likely to consider future family plans when choosing a major and making future career plans both for themselves and for other women, in general, than their male counterparts.

**SOCIAL STRUCTURAL EFFECTS OF EVALUATIONS OF THE ETHICS OF MEDICAL DECISIONS.**

**Stacy Bonneville**, undergraduate student, with **Jeff Erger**, faculty.

*Joint Meeting of the Midwest Sociological Society and The North Central Sociological Association, Chicago, IL, 4-5 April 2007.*

This research investigates the evaluation of the ethics of medical decisions. Through a quasi-experimental design, a survey employing vignettes presented a variety of medical ethical dilemmas, and then asked subjects to evaluate the ethics of the decisions made by health care providers. The results show that 1) doctors are generally seen as more ethical when following organizational rules or professional codes of ethics, 2) the transfer of agency to a

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spouse against a patient's express instructions is seen as ethical while the transfer of agency to a same sex partner or neighbor is not, and 3) denial of pain medication to the terminally ill is seen as unethical regardless of health care provider reasoning. The results of this study indicate that the contextual details of medical situations can have a significant effect on how decisions in those situations are evaluated, and that small differences in the communication about medical decisions has the potential to greatly affect judgments by lay people about the ethical nature of those decisions.

## **SPECIAL EDUCATION**

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**MAKING IT REAL: FOSTERING INTERDISCIPLINARY COLLABORATIVE ASSESSMENT PRACTICES IN PRESERVICE PREPARATION.** Jamie Hoffman, Holly Kennin, Lindsay Michalski, and Lauren vanDoorn, undergraduate students, with Joe Morin, faculty.

*Council for Exceptional Children – Teacher Education Division Annual Conference, San Diego, CA, 8-11 Nov. 2006.*

This session describes an authentic experience where 4 preservice special educators participated in an interdisciplinary assessment clinic. Each student was assigned to a team with representation from six different disciplines. Integrated assessment findings were identified and recommendations were conveyed in a formal staffing. Positive anecdotal evidence reporting growth is shared.

## **WOMEN'S STUDIES**

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**FEMINIST PEDAGOGY: CHALLENGES AND OPPORTUNITIES WITHIN THE INTER- AND MULTI- DISCIPLINARITY OF WOMEN'S STUDIES.** Mary Jo Klinker, undergraduate student, with Susan Turell, faculty.

*University of Wisconsin System's 31st Annual Women's Studies Conference, Chicago, IL, 12-14 April 2007.*

Although there are many opportunities and benefits for Women's Studies programs to be interdisciplinary and multidisciplinary, this inclusivity can create some challenges for programs regarding feminist pedagogy. Opportunities include a gender presence in many disciplines and a visible commitment by discipline-focused departments to women's studies as evidenced by these

courses. However, ownership of the course, from content to instructor to methods, often falls under the jurisdiction of the 'home' department, with little to no input or influence from women's studies. This can create challenges if any of the above variables don't share or demonstrate the same commitment to feminist/gendered process as does Women's Studies.

The women's studies program at UW-EC has begun to examine these issues at two levels. First, a women's studies committee developed a process by which to work with all instructional faculty to improve their feminist pedagogical processes. This process includes observation with a feminist pedagogy rubric to provide focus. The observations have been instructive to learning for both the professor and the observer. Second, a women's studies student's capstone examined feminist pedagogy from a student's perspective on learning. After reading extensively to ground her theoretical knowledge of feminist pedagogy, she attended both women's studies and courses cross listed with women's studies; also, she attended some classes all semester, while others were observed one time. Formatted for discussion, this presentation will include an overview of the observations from both perspectives, and then engage the participants in a discussion of opportunities and challenges regarding feminist pedagogy.

**LIBERATING ACT AS THIRD WAVE'S EVERYDAY ACTIVISM. Emily Kopp, Amanda Schaefer, and Christine Kaye**, undergraduate students, and **Barbara Weisenberger**, graduate student, with **Patti See**, faculty.

*University of Wisconsin System's 31st Annual Women's Studies Conference, Madison, WI, 20-21 April 2007.*

Presenter will discuss her experiences teaching a Women's Studies course on "Culture of Third Wave Feminism" in which she requires students to complete a "Liberating Act" and a research paper based on that act. In the spirit of Gloria Steinem's *Outrageous Acts and Everyday Rebellions*, students perform a positive act that represents something that challenges the way they see the world or how the world sees them. This might include challenging any of the "isms"—sexism, racism, homophobia/heterosexism, classism, ageism, etc.—or simply examining one "barrier" in their lives.

Former students will be available to talk about their projects. This session will also include an open discussion with participants on how they promote "everyday activism" for their students and themselves.

BIOLOGY

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**ANALYSIS OF ENTEROCOCCUS FAECALIS PLASMIDS pAM368 AND pAM369.** Cathy Pohl, graduate student, with Sasha Showsh, faculty.

*Annual Kenneth B. Raper Symposium, UW-Madison, 29 August 2005.*

*2005 North Central Branch of the American Society for Microbiology 65th Annual Meeting, Ames, IA, 22-24 Sep. 2005.*

*Enterococcus faecalis* 368 is a clinical isolate that is resistant to vancomycin (Vmr), gentamicin (Gmr), streptomycin (Smr), tetracycline (Tcr), erythromycin (Emr), and kanamycin (Kmr), and produces a bacteriocin. The strain was of particular interest because of its ability to transfer the Vmr trait in response to pheromone signaling. The data indicate that strain 368 contains at least two different conjugative plasmids. One plasmid, designated pAM368, codes for VanA-type resistance and a response to the cAM373 pheromone. The other plasmid designated pAM369 codes for EmrGmrKmr, for the production of a bacteriocin, and encodes a response to the cCF10 pheromone. Both Tcr and Smr traits are chromosomally located. Plasmid analyses suggest that pAM368 and pAM369 have sizes of approximately 107kb and 93kb respectively. During filter-matings with *E. faecalis*FA2-2, Tcr transfer was detected at 10-6, Emr, Gmr or Kmr was detected at 10-1, and Vmr and Smr were detected at 10-3 transconjugants/recipient. EmrGmrKmr transconjugants (sensitive to other antibiotics) produced bacteriocin and responded to the sex-pheromone cCF10. Analysis of the bacteriocin demonstrates that it is an extracellular protein with a molecular weight of 66KDa. It is heat labile, exhibiting bacteriostatic activity against *E. faecalis* (non-producer strain) over a wide pH range (pH= 6 - 11).

**HIERARCHIES OF PLANT-PLANT AND PLANT-FUNGAL INTERACTION STRENGTHS WITH VARIED RESOURCE RATIOS.** Deborah Freund and Kathye Miller, graduate students, with Tali Lee and Evan Weiher, faculty.

*90th Annual Meeting of the Ecological Society of America, Montreal, Quebec, Canada, 7-12 Aug. 2005.*

Ecologists have long recognized the important roles of competition and mutualism in shaping plant communities. We sought to investigate a series of related questions regarding the nature of positive and negative interactions by conducting a two-year factorial experiment in which we grew 6 prairie plant species (three C4 grasses, three forbs, stratified by size) with and without

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neighbors, with and without high dosages of chlorothalonil fungicide (which reduced average MF colonization by 34% - 43%), and with varied resource ratios (control, 15 g N m<sup>-2</sup> ammonium nitrate fertilizer, 15 g m<sup>-2</sup> N as balanced complete fertilizer). Plant-plant interactions were mainly negative and plant-fungal interactions were mainly positive, but not always. Hierarchies of plant-plant interaction intensities were concordant among the species ( $W = .77$ ,  $p < .001$ ), which means the strongest competitors tended to remain the strongest, regardless of treatment. There was a weak, but significant concordance of treatments ( $W = .42$ ,  $p = .040$ ), which means there was a weak tendency for species to perceive the strongest competition intensities in the same treatments. Nutrient additions reduced competition intensity. The best competitor benefited from neighbors, and it was a medium-sized forb. Hierarchies of plant-fungal interaction intensities were not concordant among either the species ( $W = .35$ ,  $p = .229$ ) or the treatments ( $W = .064$ ,  $p = .858$ ), so there was no tendency for plant-fungal interaction strength to be stronger in some treatment combinations than in others, nor did the species have strongly consistent relative responses to fungi. Even so, there was a marginal correlation between ability to interact with plant neighbors and ability to interact with fungi ( $r = .667$ ). The next steps include assessing the role of MF colonization rate on biomass and competitive ability. These results support different aspects of both the Grime/Keddy camp and the Tilman camp regarding the nature of competition and they support Hartnett/Klironomos ideas that plant-fungal interactions may be both context-dependent and idiosyncratic.

### **COMMUNICATION SCIENCES AND DISORDERS**

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**A COMPARISON OF LANGUAGE PRODUCTION, LANGUAGE COMPREHENSION, AND COGNITIVE FUNCTIONING IN IDENTICAL TWINS WITH WILLIAMS SYNDROME.** Laura Hurd, graduate student, with **Kristine Retherford**, faculty.

*American Speech Language Hearing Association Convention, San Diego, CA, 18-20 Nov. 2005.*

Although many authors have noted that language expression is superior to language comprehension in individuals with Williams syndrome (WS), the results of research have been contradicting. Individuals with WS comprise a heterogeneous population; therefore, generalized statements regarding their language and cognitive abilities may not be representative of all individuals diagnosed with WS. In addition, few studies have looked at individuals who do not have the chromosome deletion typical in the diagnosis of WS. This research provided an in-depth look at language expression, language comprehension, and cognitive functioning in identical twins with WS.

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**DISCOURSE MARKER USE IN PEOPLE WITH APHASIA: FAMILIARITY OF LISTENERS.** Kelly Haylett, graduate student, with Lisa LaSalle, faculty.

*American Speech-Language-Hearing Association Annual Convention, Miami, FL, 15-19 Nov. 2006.*

Professionals who work with people with aphasia need to know more about “discourse markers” (DMs) (e.g., “y’know”), as it is possible that DMs represent a type of compensatory strategy used by people with aphasia. It was hypothesized that DMs would show different patterns of occurrence than errors and disfluencies in the familiar versus unfamiliar listener conditions. Two individuals with Broca’s aphasia were asked to retell key elements of a sitcom episode to a familiar and an unfamiliar listener. Results will be discussed in terms of limited capacity processor models and compensatory strategies and application to working with people with aphasia.

**DISTRICT & CESA SUPPORT FOR SCHOOL-BASED SLPs LITERACY ROLES.** Ashley Gonyo, Jill Lyche, Lauren Margolies, Courtney Ruffert, and Lauren Winter, graduate students, with Linda J. Carpenter, faculty.

*American Speech-Language-Hearing Association Annual Convention, Miami, FL, 15-19 Nov. 2006.*

This study examined the ways Wisconsin’s school districts and CESA agencies support school-based speech-language pathologists (SLPs) in their literacy roles. Wisconsin SLP Program Support Teachers (PST) responded to survey questions about their perceived role in facilitating literacy, continuing education needs of school-based SLPs as related to literacy, continuing education opportunities focused on literacy provided for school-based SLPs by their districts/CESA, and additional avenues of continuing education support for literacy recommended by PSTs for school-based SLPs. Data analysis is in process; results will show perceived roles, continuing education needs and opportunities, and additional continuing education recommendations by geographic region in Wisconsin.

**THE EFFECTIVENESS OF USING SOCIAL STORIES VERSUS INCIDENTAL TEACHING TO TRAIN SOCIAL SKILLS WITH A SIX-YEAR-OLD BOY WITH AUTISM.** Kimberly J. Schopen, graduate student, with Kristine Retherford, faculty.

*American Speech Language Hearing Association Convention, San Diego, CA, 18-20 Nov. 2005.*

The purpose of this study was to compare the effectiveness of the use of social stories versus the use of incidental teaching to train social skill behaviors in a child with autism. Social stories are scripted scenarios from the per-

## ***Graduate Studies - Communication Sciences and Disorders***

spective of a child that help the child understand specific social situations. Incidental teaching involves an interaction between an adult and child that occurs in a natural situation and is used to give the child an opportunity to practice a skill. This includes a child's initiation of an interaction with the clinician in that situation, and then the clinician's instruction or elaboration of the language the child used. Previous research has demonstrated the individual effectiveness of each of these techniques to train social skills.

For this study, a six-year-old boy with autism was chosen to receive both intervention techniques to determine which was more effective. Four social skill behaviors with which the subject had difficulty were chosen for intervention. Two of the behaviors were randomly chosen to be trained by social stories and two to be trained by incidental teaching. The subject's competence in the behaviors was measured at pre-treatment and post-treatment with the use of rating scales created by the experimenter. Six blind raters were chosen to view pre-treatment and post-treatment videos of the behaviors and complete the rating scales. Parents also rated the child's competence in the behaviors in the natural setting prior to and after treatment.

Overall, the results of the pre-treatment and post-treatment ratings indicated that a statistically significant increase in ratings occurred for one of the behaviors. This behavior was trained by incidental teaching. Further rating scale item analyses supported the significant change in this behavior. Parental ratings of the behaviors were inconsistent, with the mother's ratings showing an increase in ratings of the behaviors trained by social stories and the father's ratings showing no change or a decrease in ratings. As a whole, the results suggested that incidental teaching was more effective in training social skills in the subject. Contributing factors and implications of the results were discussed, and suggestions for further research were made.

**MENTORING UNDERGRADUATES IN RESEARCH.** **Andrea Boh**, graduate student, with **Linda Carpenter**, faculty.  
*American Speech-Language-Hearing Association Annual Convention, Miami, FL, 15-19 Nov. 2006.*

This poster addresses the PhD shortage in higher education by describing efforts at the University of Wisconsin-Eau Claire to mentor undergraduates in research. In spring 2005, 20 undergraduates in CSD began a Directed Studies experience with the primary author; they formed research teams, selected topics, searched the literature, developed research questions, designed projects, and wrote and submitted proposals for university funding. Projects were conducted in fall 2005; data were analyzed in spring 2006. This poster documents the process of this research experience, student learning outcomes, dissemination for each project, and lessons learned in mentoring undergraduates in research.

## *Graduate Studies - Communication Sciences and Disorders*

**PRE- & POST-TREATMENT IMITATION CHANGES IN CHILDREN WHO STUTTER.** Ashley Erickson, graduate student, with Lisa LaSalle, faculty.

*American Speech-Language-Hearing Association Annual Convention, Miami, FL, 15-19 Nov. 2006.*

The Covert Repair Hypothesis suggests there is a temporal impairment in the phonological encoding skills and abilities of children who stutter. At Time1 (evaluation) and Time2, (post-treatment and follow-up), seven young children who stutter completed a storyline imitation task that tests five CVC encoding conditions - same rime, same coda, same onset, same onset+nucleus, and varied phoneme. Five of these children received treatment; two spontaneously recovered. Preliminary results suggest that stutter frequency and speech rate decreases occur pre- versus post-treatment; phonological errors decrease as well. Results will be discussed in terms of phonological encoding and temporal impairment.

**PERFORMANCE EQUIVALENCES ACROSS TWO MEASURES OF PHONOLOGY.** Stephanie Wilson, Nicole Brantner, and Molly Johnson, graduate students, with Linda Carpenter, faculty.

*American Speech-Language-Hearing Association Annual Convention, Miami, FL, 15-19 Nov. 2006.*

This study was sponsored by the Office of Research and Sponsored Programs at the University of Wisconsin – Eau Claire. It was designed to determine performance equivalencies for preschool-aged children between phonological deviancy scores on the Assessment of Phonological Processes – Revised (APP-R) and total of major phonological deviations on the Hodson Analysis of Phonological Patterns – Third Edition (HAPP-3). Preschool-aged children from the Eau Claire Area School District were tested in the fall of 2005 on both measures; data analysis involved linear regression to determine equivalencies between performances on the tests. Results provided equivalency tables for scores on the two measures.

**PRESCHOOLERS' PHONOLOGICAL ENCODING & STUTTER LOCI DURING CVC-IN-UTTERANCE IMITATION.** Jodi Budd and Rebecca Zeitler, graduate students, with Lisa LaSalle, faculty.

*American Speech Language Hearing Association Convention, San Diego, CA, 18-20 Nov. 2005.*

Children may stutter due to a phonological encoding impairment. Children imitating CVC words in which each C (onset), V (nucleus) and C (coda) differs should elicit more stuttering than when imitating words in which onset, coda, onset+nucleus, and nucleus+coda are the same, because phonemes

## ***Graduate Studies - Communication Sciences and Disorders***

selected have a slower-to-rise activation than those re-selected. Five CVC types were embedded in seven utterances per story: Same Onset: "Mike & Mitch"; Same Onset+Nucleus: "Tom & Todd"; Same Nucleus+Coda: "Nate & Kate"; Same Coda: "Pete & Bert"; and CVC-differ: "Nick & Bob." Three- to five-year-olds who stutter imitated these 35 utterances, and results are interpreted.

**TREATMENT FOR CHALLENGING BEHAVIORS IN A FEMALE WITH CHARGE SYNDROME.** Sandra Endle, graduate student, with Lisa LaSalle, faculty.

*American Speech-Language-Hearing Association Annual Convention, Miami, FL, 15-19 Nov. 2006.*

Professionals who work with people with CHARGE syndrome need more information about the "challenging behaviors" (e.g., hand flapping; inappropriate giggling) in this population. Yet it is unclear whether professionals should attempt to reduce or to simply monitor these behaviors, which may be adaptive responses. A 17-year-old female with CHARGE syndrome and no other diagnoses participated in an ABA design. In the treatment condition, the clinician used familiar activities, provided choices and used scaffolding, which are strategies not used at baseline. Results have practical implications for developing a plan to support these individuals in the learning environment.

**TYPE-TOKEN RATIO (TTR) SCORES IN NORMALLY DEVELOPING TODDLERS.** Heidi Hoerning, graduate student, with Kristine Retherford, faculty.

*American Speech-Language-Hearing Association Annual Convention, Miami, FL, 15-19 Nov. 2006.*

Type-Token Ratio (TTR) has been used to identify children with language impairments that may be due to limited vocabularies (Miller, 1981; 1991; Retherford, 2000). The purpose of this study is to determine if Templin's (1957) normative data relating to vocabulary diversity of 3-year olds is sufficient in assessing vocabulary diversity of children younger than three years. The study's authors hypothesize that it is not. Therefore the primary purpose of this study is to determine the level of lexical diversity that is typical of children between the ages of 18 and 35 months. Methodology, results, and implications will be discussed.

**VOCAL FOLD PARALYSIS: RELATIONSHIP BETWEEN ACOUSTIC MEASURES & PERCEIVED BREATHINESS.** Kathleen Kuzma and Corinn Severson, graduate students, with Larry Solberg, faculty.

*American Speech-Language-Hearing Association Convention, Miami, FL, 15-19 Nov. 2006.*

**BELONGING DEAD: HYBRIDS, DIFFERENCE AND PERFECTION IN THE BRIDE OF FRANKENSTEIN.** Rebecca Conn, graduate student, with Jan Stirm, faculty.

*Institute for Liberal Studies Conference on Science and Culture, Frankfort, KY, 6-9 April 2006.*

In *Bride of Frankenstein*, Dr. Frankenstein and his mentor Dr. Pretorius undertake the construction of a female creature to be the perfect mate and match of the Frankenstein Monster. However, the two scientists do not replicate the experiment that birthed the Monster. Instead, drawing on traditional social and scientific concepts of female difference, they perform a new one, culminating in the production of a plant-human hybrid woman. Thus, she fails to be a perfect mate for the Monster, with catastrophic results.

**BOOKS OVER BORDERS.** Daniel Hardy, S. Grant Tharaldson, and Traci Thomas-Card, graduate students, and Amanda Lonsdorf, undergraduate student, with Gloria Hochstein, faculty.

*Sigma Tau Delta 2006 International Conference, Portland, OR, 29 March–2 April 2006.*

Books over Borders is the book drive and fundraising campaign designed by the Theta Zeta Chapter of Sigma Tau Delta to send books to college and other adult students in other countries, including Nicaragua, Russia, and Indonesia. In addition to book sales and other fundraising methods, the Theta Zeta chapter hosts an annual benefit concert consisting of musical talent from the students and faculty from our department at the University of Wisconsin-Eau Claire. For this presentation, we shared the following information: (1) How to find a place/group in need of books, (2) Where to find books applicable to your needs, (3) Tips for general fundraising, (4) Tips for creating a benefit concert, and (5) Tips for getting the community involved.

**ENGLISH FESTIVAL.** Daniel Hardy, S. Grant Tharaldson, and Traci Thomas-Card, graduate students, and Amanda Lonsdorf, undergraduate student, with Gloria Hochstein, faculty.

*Sigma Tau Delta 2006 International Conference, Portland, OR, 29 March –2 April 2006.*

In eleven years, the English Festival at the University of Wisconsin-Eau Claire has grown to be one of the largest student-run language arts festivals in the country. The Festival plays host to visiting writers, musicians from around the area, English capstone students presenting their papers, and students and

alumni and faculty and community members presenting on everything related to the English language.

The purpose of the English Festival is to give students, alumni and community members a structured opportunity to help conceptualize, organize and/or participate in a significant way in the local and global language arts community. The vast majority of our panelists, performers, and presenters are the students themselves. In some ways the English Festival has resembled a typical academic conference, with papers and discussion; in other ways it has been quite free-form, with improvisational skits followed by questions or discussions.

In explaining the English Festival, Theta Zeta chapter members will outline the process of planning, organizing, and producing the Festival. We will explain the committee system used to organize the Festival. We will also provide examples of previous individual projects and past Festival themes and topics. We will provide the information to be used by other chapters as inspiration and a starting point from which to organize similar events in their own universities.

**REDEMPTIVE RESTROOMS: MOMENTS OF UTOPIC POSSIBILITY IN THE HANDMAID'S TALE.** Amery Bodelson, graduate student, with Stacy Thompson, faculty.

*47th Annual Midwest Modern Language Association Convention, Milwaukee, WI, 10-13 Nov. 2005.*

Volker Schlöndorff's 1990 film adaptation of Margaret Atwood's 1986 cautionary novel *The Handmaid's Tale* depicts a near-future world where the Republic of Gilead imposes its Christian fundamentalist theocracy on the people of the former United States. Once women are stripped of identities, jobs, and families, they are cattle-carted into social/sexual positions according to their fertility and past life experiences. Gender is the ultimate defining quality in Gilead; fertile women are the property and the national treasure of the Gilead regime. In considering the utopic possibilities of dystopic films, I sought to explore the ways Schlöndorff's interpretation of the novel contributes to what film critic Laura Mulvey refers to as the "paradox of phallogentrism," in which all the manifestations of phallogentrism depend on the image of the castrated woman to give order and meaning to the world (14). In *Visual and Other Pleasures*, Mulvey questions how to fight the unconscious structured like a language while still caught within the language of patriarchy. Using Mulvey's prompt as a lead, I ask whether we can find redemptive, utopic qualities in watching *The Handmaid's Tale* through the ubiquitous lens of phallogentrism. If Atwood's speculative fiction suggests that its readers consider the ways women can survive misogynistic dystopia by retaining pieces of the father tongue, what does

## *Graduate Studies - English*

the film ask of its viewers? Does Schlöndorff make the instances of scopophilia, pleasure in looking, so ironic that we can do naught but notice our own contribution to the handmaids' demise?

**SALVAGING THE SINKERS (AN INVESTIGATION OF TIMELESS TIMBER, INC., OF ASHLAND, WI).** Lindsay Heiser, graduate student, with Jack Bushnell, faculty.

*Wisconsin Writers Conference, Baraboo, WI, 9-10 June 2006.*

Highlighting a unique perspective on a situation, and planting meaning in something that may not be seen as the most "direct" approach to environmentalism are approaches found in the works of well-known environmental writers; these strategies are fitting to the current environmental cause in Bitzerian terms because they effectively negotiate the interrelated situational components of exigence, audience, and constraints. In my exploration of Timeless Timber Inc. of Ashland, Wisconsin, I enact the strategies of writers who show their readers that environmentalism comes in many forms, and that environmental writing can be humorous or reflective—not necessarily a polemic reaction to a crisis. Rather, environmental concern can be expressed in less obvious ways and can involve making choices that may not seem, at first glance, “environmentalist.” Targeting an increasingly diverse audience, it is important to continue to seek creative, alternative methods of presenting environmentalism, and to give readers a choice instead of a command. This creative nonfiction essay and corresponding presentation give the audience an overview of the Timeless Timber company, as well as an analysis of their recovery techniques and marketing strategies, asking the audience to decide for themselves whether the company’s goals are environmentally sound or detrimental.

**TOWARD CREATING A UTOPIA ON THE REZ: IDEALIZED REPRESENTATION IN THE MAKING OF THE FILM POWWOW HIGHWAY.**

John Rykhus, graduate student, with Stacy Thompson, faculty.

*47th Annual Midwest Modern Language Association Convention, Milwaukee, WI, 10-13 Nov. 2005.*

In a historically groundbreaking endeavor, Jonathan Wacks filled the screen for the first time with a narrative which possessed a subjectivity grounded wholly in a Native American perspective. This paper explores how that subjectivity is impacted by both the conventions of the film industry and the perspectives of the dominant white American culture in the process of its transformation from novel to film. I argue from a Lacanian perspective that the controlling ideology of the dominant culture creeps into the story through the processes of commodification and production, despite this being an “independent” film. Depictions of Native Americans, whether written or when transferred to the

## *Graduate Studies - Foreign Languages*

cinema, historically have tended to result in a homogenized Native subject who is exoticized, to use Rushdie's term. This occurs in *Powwow Highway* through the very processes inherent in cinematic production as well as the interests inherent in the distribution of films, which results in the further perpetuation of Native American stereotypes. This becomes highly relevant when one considers, as Stuart Hall has noted, that it is through these visual representations that people often construct their own identifying impressions, thus controlling how the wider public formulates their perceptions of who Native Americans are.

American Indian Movement activist David Seals, in his novel *The Powwow Highway*, is ardently critical of the neglect the wider society has shown regarding Native Americans and doesn't flinch in his creation of a vivid portrayal of the prevalent problems of Indian life including alcoholism and drug addiction, which the film version tends to sugar-coat in order to appeal to a more general audience. While the film doesn't do away with all of Seal's significations of a real-world dystopia, it challenges the actual representation of reservation life through its presentation of characters who are embodiments of more widely acceptable moralistic codes.

Both mediums play self-consciously with themes of Native identity and the interplay of white culture, and both mediums also beg the question Faye Ginsburg poses, in her discussion of the film *Smoke Signals*, as to whether "minority or dominated subjects can assimilate media to their own cultural and political concerns or are inevitably compromised by its presence" (79).

From Faye's vantage point, both Seal's novel and the film become problematic. But a comparison of the two can engage us in a discussion of how, through Wack's creation of "the world of the film," certain ethical issues of representation come to the foreground regarding the interplay of Native identity and the artistic search for a Utopian palatability within a media product in order to allow a mainstream audience to more easily connect to its subjectivity.

## FOREIGN LANGUAGES

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**LINKING STUDENTS TO COMMUNITIES THROUGH SERVICE LEARNING.** Megan Allen, undergraduate student, and Bruno Santo, graduate student, with Beth Kozbial Ernst, faculty.

*41st Annual International Teachers of English to Speakers of Other Languages (TESOL) Convention, Seattle, WA, 20-24 March 2007.*

International students studying at universities often experience difficulties in finding opportunities to interact with the community off-campus. Many

## *Graduate Studies - History*

experience self-imposed language and cultural barriers that inhibit their full engagement in the larger community, and may often spend much of their out-of-class time with other native language speakers. Furthermore, many international students may be unfamiliar with service learning in their native countries. Many may not have ever volunteered in any context. Therefore, in order to remedy this situation, the presenters created a service learning project to get international students involved in their communities, to give them opportunities to learn about American society and service learning itself, and to decrease some of the language and cultural barriers that prevents students' involvement. In this poster session, the participants will provide a step-by-step explanation of how they created and implemented a service learning project for international students enrolled in an American university. They will also share their results of pre- and post-project surveys given to all participants in which they expressed what they learned about American society, what ways they improved their English, what they learned about people in the community, and whether they would like to volunteer in the future.

### **HISTORY**

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#### **FOR ADMISSION AS A COUNTY CHARGE: TUBERCULOSIS SANATORIUM CARE IN EAU CLAIRE COUNTY, WI, 1913-1974.**

**Tabitha Erdey**, graduate student, with **John Mann**, faculty.

*Paul Lucas Conference in History at Indiana University, Bloomington, IN, 2-3 March 2007.*

For Admission as a County Charge: County- Provided Tuberculosis Care at Mount Washington Sanatorium, 1913-1974” presented at the Paul Lucas Conference in History at Indiana University, March 2-3, 2007, was originally produced as a part of a team research project for the Eau Claire County Sesquicentennial Commission. The paper draws upon county court transcripts, annual reports, and other sources to show that despite the county’s best efforts, many patients understandably feared commitment to the sanatorium. This was particularly true among working-class and poorer people, for whom commitment meant they could no longer work to support their families, and also meant agonizing court hearings in order to prove their families were poor enough to require county tax payers to foot the bill.

Also produced was a two-panel exhibit, entitled “Whether You Know It or Not: Eau Claire County and Your Health Since 1856,” depicting the county’s expanding efforts to defend public health over the decades, including quarantines, milk testing, institutions, immunizations, water purification and fluoridation, and post 9-11 preparedness.

**THE ELECTRONIC ATLAS OF WISCONSIN INDIAN LAND CESSIONS.** Susan Caya and Melisa Cushing Davis, graduate students, with Jim Oberly, faculty.

*Organization of American Historians/National Council on Public History Annual Meeting, Washington, D.C., 19-22 April 2006.*

The signing of the 1825 Treaty of Prairie du Chien began a new era in Wisconsin Indian history by establishing Indian title to the land, the first step in the transference of land from its Native American stewards to Euro American settlers. Over the next 34 years, the United States would negotiate eighteen land cessions with the Indian Nations of Wisconsin. Conceived to further study of Wisconsin Indian History, the Electronic Atlas of Wisconsin Indian Land Cessions unites the Wisconsin treaty cession map of Charles Royce, first published in 1896-1897, with the 1903 treaty compendium of Charles Kappler, into one comprehensive online reference tool. In addition, users of the Electronic Atlas can access treaty journals, senate ratification debates, and biographical sketches of select treaty signers. Not simply the story of the dispossession of Wisconsin's first people, however, the Electronic Atlas also documents the retro-cessions in which the U.S. returned some of the ceded territory to "Indian Country" in the form of reservations, and the landmark federal and state cases involving Wisconsin Indian ceded territories and the reserved rights still enjoyed by tribes on those land and waters.

**RATIONAL GODDESS/PAGAN WITCH: HISTORY AND HYPATIA FROM THE FOURTH CENTURY A.D. THROUGH MODERNITY.**

Jaclyn de Medici, graduate student, with Jane Pederson, faculty.

*3rd International Conference on Ancient to Modern European History, Athens, Greece, 29-31 Dec. 2005;*

*20th National Conference on Undergraduate Research, Asheville, NC, 6-9 April 2006.*

Hypatia was a woman who lived a life of great fame and suffered a death of greater tragedy. It is the details of her accomplishments and murder that cause her to be the subject of much debate in the historical narrative, and the victim of conflicting points of view. Comparison and analysis of both ancient and modern academic works reveal underlying themes of bias based on gender and the use of Hypatia's story to propagate greater historical themes. Through all of this, history must remember that she was a real woman who suffered a horrendous death. Hypatia is a singular historical actor due to her biographical survival into modern times. As an ancient woman, she was famed for her intellectual prowess in mathematics and astronomy and even more so for her Neoplatonist teachings. Hypatia maintained a sphere of power and influence at the highest levels of male-driven society in fourth century Alexandria.

## ***Graduate Studies - History***

Under the disapproval of the emerging Catholic church, her murder may or may not have been ordered by the city's Bishop Cyril, a Christian figure later canonized. Nevertheless, the deed was carried out on the altar of his church.

Hypatia's biography is full of major contradictions and disagreements. Even the ancient sources, and those personally familiar to her, wrote dichotomous accounts of her life. Beyond that, the significance, meaning, and importance of her murder have been assigned under differing agendas. The European and American Enlightenment authors all use Hypatia to their own purposes, whether vilifying or lauding the lady in question. The debate continues in academia today. Perhaps more interesting than the story itself is the study of such a lively and timeless Hypatian debate.

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### **HUMAN DEVELOPMENT CENTER**

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#### **ADHD TREATMENT OPTIONS: A COMPARISON OF PARENTS' & PHARMACISTS' KNOWLEDGE, ATTITUDES, & EXPERIENCES.**

**Jennifer Stroh** and **Ellen Voigt**, graduate students, with **William Frankenberger**, faculty.

*National Association of School Psychologists 2007 Annual Convention: Responsiveness, The Fourth "R", New York City, NY, 27-31 March 2007.*

The purpose of this presentation is to 1) increase participants' awareness of parents' and pharmacists' knowledge and understanding of ADHD treatment, 2) to identify parents' and pharmacists' information sources on ADHD and its treatment, 3) to identify parents' and pharmacists' knowledge and information sources for ADHD and its treatment, 4) to demonstrate how information received by parents influences referral and treatment choices for ADHD.

Data will be presented on parents' and pharmacists' knowledge, attitudes, and experiences regarding ADHD and its treatment. Data comparing and integrating parents' and pharmacists' views of treatments will be presented regarding stimulant medications and behavioral interventions.

The data will aid school professionals in understanding the potential impact they, as well as other professionals, have on parents' knowledge and treatment choices for their children.

#### **AN EVALUATION OF PROGRAMS TRAINING TEACHERS TO IDENTIFY WARNING SIGNS OF MENTAL ILLNESS.**

**Ann M. Staby**, graduate student, with **William Frankenberger**, faculty.

*National Association of School Psychologists 2006 Convention, Anaheim, CA, 28 March–1 April 2006.*

## ***Graduate Studies - Human Development Center***

The Minnesota Board of Teaching recently adopted a rule mandating that all teachers seeking relicensure must be trained to identify the warning signs of early onset mental illness. Several entities will be providing training sessions to meet the requirements of this mandate. The present study will examine the effectiveness of such teacher training sessions. Specifically, this research will assess participants' knowledge of mental illness warning signs immediately before and immediately following training sessions. Data collection will occur at training sessions presented by South of the River Learning Academy in Minnesota.

**HOW EFFECTIVE IS READING RECOVERY? EVALUATION OF THE READING RECOVERY PROGRAM AT COLUMBUS ELEMENTARY SCHOOL, WI.** Alexandra Clausen, graduate student, with William Frankenberger, faculty.

*National Association of School Psychologists 2006 Convention, Anaheim, CA, 28 March–1 April 2006.*

**Purpose of the Presentation:** The purpose of this presentation is to present information regarding the effectiveness of a Reading Recovery program, such as 1) whether children who receive Reading Recovery are reading at grade level or above the lowest 20%, 2) if the gain in reading is maintained, 3) whether classroom grades in reading improved, and 4) whether standardized test scores improved. **Discussion:** Data will be presented on the Reading Recovery program, past Reading Recovery program research, and the effectiveness of a Reading Recovery program. **Benefit to Participants:** The presentation will increase awareness of Reading Recovery and the need for program evaluations. Data will aid school professionals in understanding the effectiveness of one Reading Recovery program. This information will allow school professionals to make more informed decisions regarding the implementation of Reading Recovery programs.

**PHARMACOLOGICAL AND BEHAVIORAL INTERVENTIONS FOR ADHD: PARENTS' KNOWLEDGE, ATTITUDES, AND EXPERIENCES.** Jennifer Stroh and Sara Totten, graduate students, with William Frankenberger, faculty.

*National Association of School Psychologists 2006 Convention, Anaheim, CA, 28 March–1 April 2006.*

**Purpose of the Presentation:** The purpose of this presentation will be to 1) increase the participants' awareness of parents' knowledge and understanding of the treatment of ADHD, 2) to identify parents' information sources on ADHD and its treatment, 3) to identify the possible effects of parents' knowledge and information sources for ADHD and its treatment, 4) to demonstrate

## *Graduate Studies - Human Development Center*

the importance of school professionals' role in the treatment of children. Discussion: Data will be presented on parents' knowledge, attitudes, and experiences regarding ADHD and its treatment in children. Additionally, data will be presented on parents' decisions for treatment. Data comparing parents' views of treatments will be presented regarding stimulant medications and behavioral interventions. Benefit to Participants: The presentation will increase awareness regarding parents' understanding and knowledge of stimulant and behavioral treatments for ADHD. The data will aid school professionals in understanding the potential impact they have on parents' knowledge and treatment choices for their children.

**THE PHARMACOLOGICAL TREATMENT OF ATTENTION-DEFICIT/HYPERACTIVITY DISORDER: A SURVEY OF PHARMACISTS' KNOWLEDGE, PERCEPTIONS, AND EXPERIENCES.** Ellen Alsleben, graduate student, and Katie Schultz, undergraduate student, with William Frankenberger, faculty.

*National Association of School Psychologists 2006 Convention, Anaheim, CA, 28 March–2 April 2006.*

This project uses a questionnaire to (a) identify current trends in the medical treatment of childhood ADHD, (b) examine pharmacists' knowledge and perceptions of possible adverse drug interactions among children receiving one or multiple psychiatric medications, (c) assess pharmacists' attitudes and experiences with regard to the use of medications to treat ADHD in school age children, and (d) explore the impact pharmaceutical company promotion advertising has on prescribing patterns. Participants consist of 800 pharmacists randomly sampled from the state pharmacy boards of Wisconsin and Iowa. Through the use of a survey format, the study assesses pharmacists' knowledge, perceptions, and experiences with the medical treatment of ADHD. These issues are of interest for several reasons. First, the use of medications to treat childhood ADHD has been dramatically increasing. Second, pharmacists' knowledge and perceptions of ADHD treatment have not been thoroughly examined; this is important because pharmacists are accessible professionals who play a role in ADHD medication distribution, consultation, as well as offer advice. Third, pharmaceutical companies direct-to-consumer advertising may be affecting parental beliefs and prescribing patterns. Finally, public awareness and understanding of ADHD medications, including potential impacts medications may have on children, is minimal.

**PSYCHIATRIC VS. BEHAVIORAL/EDUCATIONAL INTERVENTIONS FOR SCHOOL-AGED CHILDREN.** Sara Totten, graduate student, with William Frankenberger, faculty.

## ***Graduate Studies - Human Development Center***

*National Association of School Psychologists 2006 Convention: Prevention is an Intervention, Anaheim, CA, 28 March-1 April 2006.*

The purpose of this study was to determine the types of psychiatric disorders and the corresponding medications prescribed to children enrolled in Early Childhood Special Education Programs (ECSE). Data were collected via surveys disseminated to five hundred-twenty five Early Childhood Special Education teachers in Wisconsin, Minnesota, and Iowa. Two hundred and eleven children enrolled in ECSE Programs were identified as receiving one or more psychiatric medications (8%). Information regarding psychiatric diagnoses was provided for 203 children with 171 children receiving single and/or multiple medications for their diagnoses. Finally, the attitudes of teachers related to the use of psychiatric medication(s) with children enrolled in ECSE Programs were surveyed. Teachers tended to agree that psychotropic medication helped students maintain control of their behavior. The more strongly teachers believed that medication aided in classroom control, the more likely children in their classes were receiving psychiatric medication.

**THE RELATIONSHIP BETWEEN PERCEIVED PARENTAL EXPECTATIONS AND GIFTED UNDERACHIEVEMENT.** Shannon Huff, graduate student, with William Frankenberger, faculty.

*National Association of School Psychologists 2006 Convention: Prevention is an Intervention, Anaheim, CA, 28 Mar-1 April 2006.*

**STIMULANT MEDICATION WARNINGS AND ADHD REFERRALS MADE BY TEACHERS.** Robert Latterman, graduate student, with William Frankenberger, faculty.

*National Association of School Psychologists 2007 Annual Convention: Responsiveness The Fourth "R", New York City, NY, 27-31 March 2007.*

The study examined the effectiveness of FDA recommended side effect warnings for stimulant medication on teachers' attitudes and willingness to recommend stimulant medication to treat ADHD. Participants consisted of 116 student teachers from a midwestern university. Results revealed attitude changes in female teachers who read FDA side effect warning information but no changes in male attitudes. FDA side effect warnings had no affect on teachers' willingness to recommend stimulant medication for the treatment of ADHD. However, teachers based their recommendations for stimulant medication on incomplete or inaccurate knowledge of scientific research in several areas related to stimulant medication and ADHD. Implications of the study were discussed.

**MANAGEMENT AND MARKETING**

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**A REVIEW OF INDIVIDUAL DIFFERENCES AND ORGANIZATIONAL SAFETY.** **Julia Bakhtiyarova**, graduate student, with **Kristy J. Lauver**, faculty, Management and Marketing, **Huy Le**, Human Resource Research Organization, and **Gregory Patton**, University of North Dakota. *2005 American Psychological Association Annual Convention, Washington, D. C., 18-21 Aug. 2005.*

This study provides an important examination of a potential outcome within the individual differences literature—employee safety. A systematic qualitative review concisely provides an examination of the progression that safety research has made over the last thirty years, examining relationships between individual differences and safety outcomes. By meta-analyzing existing research, this study is able to provide collective evidence of the relationship between employee personality and workplace safety. This review also has implications, both to the research community, in providing an organizing framework to examine the current status of research among individual differences and safety, as well as to the business community, by providing employers an organized synopsis of current findings, allowing them to make more informed decisions.

**MANAGEMENT INFORMATION SYSTEMS**

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**WIRELESS LAN DEPLOYMENT AT UWEC: A CASE STUDY.** **Julia Welch**, graduate student, with **Ruidong Zhang**, faculty. *Midwest Business Administration Association International Conference, Chicago, IL, 15-17 March 2006.*

This paper reviews the WLAN implementation at University of Wisconsin – Eau Claire. The deployment history, types of technologies used, and antenna issues are discussed. Meanwhile, some security considerations are also addressed.

**NURSING**

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**EXPERIENCES DESCRIBED BY NOVICE TEACHING ACADEMIC STAFF IN BACCALAUREATE NURSING EDUCATION.** **Melissa Anibas** and **Gail Hanson Brenner**, graduate students, with **CeCelia Zorn**, faculty. *19th Annual Conference on Nursing Education, Madison, WI, 8 Jan. 2007.*

As the nursing faculty shortage grows, Teaching Academic Staff (TAS) are being increasingly utilized to fill vacant faculty positions to maintain current education programs. Although they are well grounded in nursing practice, TAS may be inadequately prepared and minimally supported for a teaching role in the academic setting. No current study could be found in which the experiences and mentorship of novice TAS were explored; understanding these issues is essential to guiding approaches that would enhance TAS retention and strengthen the quality of nursing education.

The purpose of the study will be to describe the experiences of novice TAS in baccalaureate nursing programs and how those experiences compare to their expectations and needs, with a focus on mentoring experiences. A descriptive qualitative design with focus group interviews will be used. A total of twelve to fifteen participants from three settings will be sought for the study. Data management and data analysis techniques (both the reductionistic and constructionist activities) suggested by Knafl and Webster (1988) will be used. Several strategies to enhance trustworthiness of the research will also be used (e.g., audit trail, bracketing, investigator and method triangulation, member checking). Results will be compared to existing literature on mentoring and experiences of new faculty. Implications from this research for educators and administrators, as well as suggestions for further research, will be identified.

**FAMILY-CENTERED CARE IN CRITICAL CARE NURSING UNITS.**  
**Jessica Geiger** and **Mary Vitek**, graduate students, with **Susan D. Moch**, faculty.

*Midwest Nursing Research Conference, Milwaukee, WI, 2-4 April 2006.*

Interest in family-centered care is increasing within acute care settings, however, information on moving interest toward implementation is not readily available. This study was undertaken to gain information about nurse-perceived implementation of family-centered care concepts in critical care units.

The purpose of this descriptive study was to describe nurse perception of the use of the family-centered care guideline entitled “Supporting and Strengthening Families through Expected and Unexpected Life Events (National Guideline Clearinghouse, 2002) within critical care units. Through a researcher-designed survey based on the family care guideline, information from critical care nurses was solicited through an email or paper survey. The ten survey items were open-ended and included questions related to each of the eight recommendations. Sample questions include: How is desired degree of family involvement determined on your unit? How are families assessed in your work environment?

A convenience sample of thirty nurses who work in or have worked in critical care in the past two years was obtained. Involvement in the study was

## ***Graduate Studies - Nursing***

solicited from graduate students and their critical care colleagues at a regional nursing educational program. The nurses who completed the survey were employed or had been employed several, different Midwestern hospitals.

The data will be analyzed using the family-centered care guidelines as an outline. Nurse responses to use of each guideline question will be summarized. Statements related to the degree to which the guideline recommendations are perceived to be implemented by nurses surveyed will be enumerated.

**LIVING WELL IN YOUR COMMUNITY - PARISH NURSING IN THE CHIPPEWA VALLEY.** Evalee Kunkel, graduate student, with Sheila Smith, faculty.

*19th Annual Westberg Parish Nurse Symposium, St. Louis, MO, 30 Sep. – 2 Oct. 2005.*

Parish nursing is a model of holistic nursing care that focuses on health promotion and disease prevention. Parish nurses act as health educators, patient advocates, referral agents, counselors and trainers of volunteers within their faith communities. Parish nurses seek to integrate faith and health. A local group of Parish Nurses were interested in building a regional coalition and gaining support from the local health systems. The current project was designed to assist in achieving this goal. Completion of this project has allowed us to identify the prevalence of Parish Nursing programs in the local 8-county area, describe the services and activities these programs are engaged in, and gain a better understanding of the impact these low-cost programs. We have identified best practices that can be used to enhance existing programs and/or provide a framework for establishing new programs in the area, thereby expanding access to healthcare for the members of our community.

**USE OF ART AS A SCAFFOLDING TEACHING STRATEGY IN BACCALAUREATE NURSING EDUCATION.** Diane Marcyjanik, graduate student, and Nicole Hooper, undergraduate student, with Sharon Hydo and CeCelia Zorn, faculty.

*Collaboration for the Advancement of College Teaching & Learning Professional Development Conference (Building a Learning-Centered Institution), Bloomington, MN, 17-8 Feb. 2006.*

Students entering our baccalaureate nursing programs come with well-honed skills in learning biology and physiology. They also come with a deep desire to “be a nurse.” What is needed, as they begin their educational trajectory, is an opportunity to personally examine what it means to be a nurse in increasingly richer and more complex ways and be affirmed in this exploration. As educators, we must be creative in designing our teaching and learning interactions with students where they are encouraged to move beyond the notion

## Graduate Studies - Women's Studies

that "I want to be a nurse because I want to help people."

The purpose of this article is to describe an educational research project that used art as a scaffolding teaching strategy to help beginning baccalaureate nursing students create a personal expression of what nursing is for them. Scaffolding is a metaphor for supporting learners as they try to develop higher levels of critical thinking. After brief background information is provided, discussion will turn to methodology and findings. Implications for educators conclude the article.

### PSYCHOLOGY

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**AN INTERVENTION FOR STEREOTYPIC TOE-WALKING IN A YOUNG GIRL WITH AUTISM: SELF-MONITORING AND DIFFERENTIAL REINFORCEMENT OF INCOMPATIBLE BEHAVIOR.** **Amanda J. Bever**, graduate student, **Britta L. Fiksdal** and **Sarah Tillman**, undergraduate students, with **Kevin P. Klatt**, faculty, and **Karen R. Norman**, ABIS, LLC.

*Mid-American Association for Behavior Analysis Conference, Madison, WI, 13-15 Oct. 2005; 32nd Annual Convention for the Association of Behavior Analysis, Atlanta, GA, 25-30 May 2006.*

Stereotypic toe-walking has been observed in normally developing children as well as children with developmental disabilities including autism. Relatively few studies have investigated the treatment of stereotypic toe-walking in children with autism, and no studies have explored the use of a self-monitoring device or differential reinforcement of incompatible behavior (DRI) as a treatment for toe-walking. The present study investigated the efficacy of a DRI procedure used in conjunction with a self-monitoring device to reduce stereotypic toe-walking in a 6 year-old girl with autism. A multiple-probe design across settings was used to demonstrate the effectiveness of the two procedures. The results showed a decrease in toe walking across both settings.

### WOMEN'S STUDIES

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**LIBERATING ACT AS THIRD WAVE'S EVERYDAY ACTIVISM.** **Emily Kopp**, **Amanda Schaefer**, and **Christine Kaye**, undergraduate students, and **Barbara Weisenberger**, graduate student, with **Patti See**, faculty.

*University of Wisconsin System's 31st Annual Women's Studies Conference, Madison, WI, 20-21 April 2007.*

## *Graduate Studies - Women's Studies*

Presenter will discuss her experiences teaching a Women's Studies course on "Culture of Third Wave Feminism" in which she requires students to complete a "Liberating Act" and a research paper based on that act. In the spirit of Gloria Steinem's *Outrageous Acts and Everyday Rebellions*, students perform a positive act that represents something that challenges the way they see the world or how the world sees them. This might include challenging any of the "isms"—sexism, racism, homophobia/heterosexism, classism, ageism, etc.—or simply examining one "barrier" in their lives.

Former students will be available to talk about their projects. This session will also include an open discussion with participants on how they promote "everyday activism" for their students and themselves.

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