

POSTERS IN THE ROTUNDA

A CELEBRATION OF
UNDERGRADUATE STUDENT RESEARCH

CAPITOL ROTUNDA
MADISON, WISCONSIN
APRIL 18, 2007



EAST GALLERY

GOVERNOR'S PROCLAMATION



WHEREAS, one mission of the University of Wisconsin (UW) System is to serve and stimulate society by developing in students heightened intellectual, cultural, and humane sensitivities; scientific, professional, and technological expertise; and a sense of purpose;

WHEREAS, the research that takes place at the undergraduate level advances this mission across the entire spectrum of UW campuses and disciplines;

WHEREAS, UW undergraduate students participate in every aspect of the scholarly work university faculty perform and benefit substantially from faculty mentorship and experience;

WHEREAS, every institution in the University of Wisconsin System performs important research – from studying child learning impairments, to testing bio-degradable textile dyes; from analyzing forest fires, to isolating new anti-infective agents in plants;

WHEREAS, more than 100 undergraduate research projects, representing a host of different university disciplines, will be on display in the Rotunda of Wisconsin's State Capitol on Wednesday, April 18 during *Posters in the Rotunda: A Celebration of Undergraduate Research*, demonstrating the depth and breadth of the educational experience of UW undergraduate students;

WHEREAS, each UW System campus holds an undergraduate research day on their campus, and a system wide Undergraduate Research Symposium will be held on the UW-Stout campus on April 20;

WHEREAS, the research posters demonstrate the substantial contributions that students, faculty, and the University of Wisconsin System institutions make to advancing knowledge and addressing critical problems confronting our state and nation;

NOW THEREFORE I, JIM DOYLE, GOVERNOR OF THE STATE OF WISCONSIN, DO HEREBY PROCLAIM APRIL 18, 2007

UNDERGRADUATE RESEARCH DAY

IN THE STATE OF WISCONSIN AND WARMLY COMMEND THE UNIVERSITY OF WISCONSIN SYSTEM FACULTY AND STUDENTS FOR THEIR HIGH ACHIEVEMENTS AND OUTSTANDING CONTRIBUTIONS TO UNDERGRADUATE RESEARCH AND SCHOLARSHIP.

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AGENDA

Posters in the Rotunda

Wednesday, April 18, 2007
11:00 a.m. – 2:00 p.m.
The Capitol Rotunda
Madison, Wisconsin

<http://www.wisconsin.edu/posters>

12:00 – 12:30 p.m. Featured Speakers

Dr. Kevin P. Reilly
President
University of Wisconsin System

Mr. Jim Doyle (Invited)
Governor
State of Wisconsin

Ms. Lori Scardino
Undergraduate Researcher at UW-Eau Claire; recently named to the USA Today's 2007 All-USA College Academic First Team

Mr. David G. Walsh
President
University of Wisconsin System
Board of Regents

FROM THE PRESIDENT



Dear Education Partner:

The University of Wisconsin System is pleased to host “Posters in the Rotunda: A Celebration of Undergraduate Research.” Encouraging undergraduate research at each of the UW System’s 26 campuses advances teaching, research, and public service all across Wisconsin, and makes our university communities better places to live and learn.

Undergraduate researchers gain a world-class education by linking academic theory to real-world research in the field, and UW faculty who mentor these emerging scholars gain research assistance, while also strengthening their own expertise. By discovering and sharing knowledge through undergraduate research, these talented students and faculty are fulfilling the Wisconsin Idea.

Undergraduate researchers are already putting their new knowledge to work. For example, UW students have proposed solutions Wisconsin can use to improve health care, education, the environment, and biotechnology. The ideas these students encounter may someday benefit Wisconsin through innovative products and applied solutions. And, as these undergraduate researchers become UW graduates, they will be prepared with skills they can use to keep Wisconsin competitive in a growing knowledge economy.

This event would not be possible without the dedication of many individuals across the state, including the graphic design team at UW-Whitewater, the equipment assistance of UW-Madison, and the participation and support of our elected representatives. Our thanks to all of these educational partners.

I invite elected officials, proud families, and residents across Wisconsin to join me in congratulating the talented students who are displaying their undergraduate research findings this year. We also congratulate student researchers across the UW System, and the faculty and staff who contribute their time and expertise to create research opportunities that benefit all of Wisconsin.

Sincerely,

A handwritten signature in black ink that reads "Kevin P. Reilly". The signature is written in a cursive, flowing style.

Kevin P. Reilly
President
University of Wisconsin System

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UNIVERSITY OF WISCONSIN-BARABOO/SAUK COUNTY

1 Re-importation of Pharmaceutical Drugs

Joni Klinge [Baraboo]
Edward Mishleau, Faculty/Staff Mentor; Business and Economics

The student researcher presents numerous graphs and charts depicting sample costs, prices, profits, lobbying efforts, and re-importation legislation concerning pharmaceutical drugs. Her project is part of an honors project in microeconomics.

UNIVERSITY OF WISCONSIN-EAU CLAIRE

2 Ecological Consequences of Early Pleistocene Megadrought in Equatorial Africa

Sarah Ivory [Eau Claire]
Kristina Beuning, Faculty/Staff Mentor; Biology

Based on pollen analyses of sediment recovered from Lake Malawi, two discrete episodes of extreme aridity have been identified occurring between 135-90ka. This aridity had severe consequences on the ecosystem of the area resulting in plant communities different from those during the Holocene and Last Glacial Maximum and extraordinarily low lake levels.

3 A Quantitative Analysis of MySpace and the Changing Domain of Adolescent Social Development

Rebecca Mathias [Kasson, MN]
Justin Patchin, Faculty/Staff Mentor; Political Science

Online social networking sites have exploded into the social lives of today's youth. Public adolescent MySpace.com profiles were analyzed to determine what they are divulging online. This information was compared with classical social development theories to explain why adolescents flock to these sites and how it is influencing their development.

4 Estimating Recharge Areas for Large Springs in St. Croix County

Mike Molnar [Menomonee] and Jeremy Hinke [Phillips]
Katherine Grote, Faculty/Staff Mentor; Geology

Recent legislation in Wisconsin provides protection for springs and associated ecosystems against the possible negative effects of groundwater drawdown caused by nearby high capacity wells. To implement this legislation, research to identify springs and delineate their recharge areas was performed in one of Wisconsin's fastest growing areas, St. Croix County.

5 Super Bowl-promoted Movie Success: Research Evidence from UW-Eau Claire

Dan Rozumalski [De Pere] and Amanda Sutherland [Gillett]
Chuck Tomkovick, Faculty/Staff Mentor; Management and Marketing and Rama Yelkur,
Faculty/Staff Mentor; Management and Marketing

UW-Eau Claire research identified release date as the best predictor of movie success for films that advertise during the Super Bowl, followed by USA Today's Ad Likeability scores, production budget, and star power. Super Bowl-promoted movies from 1991-2006 were reviewed and the predictive powers of factors that drive box-office revenue were analyzed.

6 Spectroscopy of Methanobactin: Potential Implications for Bioremediation

Lori Scardino [Eau Claire]
Scott Hartsel, Faculty/Staff Mentor; Chemistry

Methanobactin is a chromopeptide produced by methane-oxidizing bacteria as part of their copper acquisition system. Detailed spectroscopic studies have been carried out to assess its metal-binding ability and structure. This work may prove significant in the area of bioremediation as methanobactin can remove metal ions from solution, soils, and minerals.

7 Reading, Writing, and Study Skills for Native American High School Students

Mike Slowinski [Appleton]
Susan Mc Intyre, Faculty/Staff Mentor; Curriculum and Instruction

Twenty-seven Native American middle and high school students participated in a two-week college preparation program at UW-Eau Claire in 2006. A preliminary survey was developed to assess reading and study skills. A curriculum was designed based on the students' needs, and a post test was administered to examine gains.

8 The Augusta Portrait Series: Capturing the Essence of Experience Etched in Age

Zach Stensen [Augusta]
Sandra Starck, Faculty/Staff Mentor; Art and Design

These paintings explore the relationships between age and environment in the faces of elderly people selected from my home town. By painting their portraits, the student wanted to capture the essences of wisdom and longevity beyond their physical appearance, and create something that everyone in my community could enjoy.

9**The Effect of Stimulant Medication Warnings on Teachers' Attitudes and Attention Deficit Hyperactivity Disorder (ADHD) Treatment Referrals**

Courtney Wood [Oshkosh] and Stephanie Pahl [Green Bay]
Bill Frankenberger, Faculty/Staff Mentor; Human Development Center

Previous research revealed that teachers were likely to refer students for ADHD. The researchers examined the effects stimulant medication warnings had on teachers' attitudes and willingness to recommend stimulant medication. Results revealed significant differences in females' attitudes between those who read FDA side effect warnings and those who did not.

UNIVERSITY OF WISCONSIN-FOND DU LAC**10****Natural Disasters' Bulls Eye**

Jeremy Smet [Fond du Lac]
Michael Jurmu, Faculty/Staff Mentor; Geography and Geology

This poster illustrates a study of natural disasters using concepts learned in a geology course and utilizing Geographic Information Systems (GIS). The study examined natural disasters such as volcanoes, tornadoes, hurricanes, and landslides throughout the world. The analysis of these disasters shows some of the most dangerous locations to live.

11**Top Ten Cities in the Path of Hellfire and Brimstone**

Joe Vande Slunt [Fond du Lac]
Michael Jurmu, Faculty/Staff Mentor; Geography and Geology

Researchers have used Geographic Information Systems to map the top ten cities in present danger from natural disasters. Other factors such as the geography, technology, and history of the country were taken into consideration.

UNIVERSITY OF WISCONSIN-FOX VALLEY**12****Fecal Coliforms in Lower Fox River Tributaries**

Arjun Dhilon [Menasha]
Teresa Gonya, Faculty/Staff Mentor; Biological Sciences

Tributaries of the Lower Fox River have been studied for the past year to determine overall stream health. Fecal coliforms have been found in several of the tributaries, and at several times during the monitoring project. Agriculture and commercial drainage may be primary sources of the coliform contamination.

13 Reactions of a Telluroheterocycle with Sulfur and Selenium Donating Ligands

Nathan Edeler [Hortonville] and Emily Ricks [Appleton]
Martin Rudd, Faculty/Staff Mentor; Chemistry

The reaction of 1,1-diiodo-3,4-benzo-1-telluracylopentane towards neutral thiourea, selenourea, and related molecules has been investigated. The investigators have observed that the tellurium containing heterocycle can retain its +4 oxidation state or become reduced and act as a ligand itself. Single crystal X-ray diffraction experiments prove the structures of the novel products.

14 Historic Microcomputer Repair and Restoration

Dan Fink [Neeenah]
Bill Bultman, Faculty/Staff Mentor; Computer Science

The researcher restored historic microcomputer equipment dating from 1963-1989. The history of each system was researched, in an effort to create a museum-quality display. The star of the show is an MITS Altair 8800, considered to be the first popular “personal” computer, sold via the back of the January 1975 issue of Popular Science.

15 Solarized Pinellas County: Post-hurricane Hazard Mitigation and Sustainable Living

Amanda Hoffman [Kimberly], Samantha Robinson [Appleton], Jillian Kasdorf [Appleton], Timothy Olson [Green Bay], and Louise Ebben [Appleton]
Kristin Runge, Faculty/Staff Mentor; Communication and Theatre Arts and James Brey, Faculty/Staff Mentor; Geology and Geography

The poster illustrates a plan to reconstruct Pinellas County, Florida after its theoretical destruction from a Class V hurricane. It integrates concepts from environmental geology and communication arts with Geographic Information Systems to produce an environmentally sustainable community free of serious hurricane risk.

16 The Politics of Poverty

Bryan Hulbert [Menasha]
George Waller, Faculty/Staff Mentor; Political Science

A literature review of poverty in the U.S. concludes that past and current efforts at alleviating poverty have not effectively addressed either the root causes or the symptoms of poverty, and that the constraints of the social and political environment within which the policymaking process operates have been largely responsible for that failure.

17 Synthesis and Characterization of Tellurium Complexes with Bulky Thioureas

Gregory Kokke [Appleton]
Martin Rudd, Faculty/Staff Mentor; Chemistry

The researchers have been investigating the reactions of tellurium with bulky thioureas to better understand the coordination of the central Te atom. Reactions of TeO₂ with HBr and (1-naphthyl)-2-thiourea or 1-cyclohexyl-3-(2-morpholinoethyl)-2-thiourea led to the isolation and X-ray structural characterization of several novel molecules including a unique square pyramidal [TeBr₄(CH₂C(O)CH₃)] anion.

18 Environmental Status of Six Tributaries of the Lower Fox River Watershed

Esmeralda Leon [Neeah], Amy Munes [Appleton], and Katie Streufert [Appleton]
Teresa Gonya, Faculty/Staff Mentor; Biological Sciences

An environmental profile of six different tributaries of the Lower Fox River was conducted several times over the past year in an effort to measure and describe the quality of creeks which flow into the Lower Fox. Preliminary data indicate that overall water quality is good, but some creeks are impaired by local industry and/or agriculture.

19 Mold Growth Inhibition by Probiotic Bacteria

Ryan Rooyakkers [Kaukauna]
Dubear Kroening, Faculty/Staff Mentor; Biological Sciences

Artificial selection of probiotic bacteria (*Lactobacillus* species) has been performed to identify increased growth at room temperature and inhibit mold growth. Studies utilizing mutagenesis and further selection are being conducted to develop bacteria for mold growth inhibition on wet distiller's grains.

20 Ideas, Production, and Presentation of Art for a Gallery Exhibition

Andrea Steudel [Appleton] and Rachel Cisler [Appleton]
Judith Waller, Faculty/Staff Mentor; Art

Students presented an idea to a campus committee for a joint exhibition on observational painting. They wrote a grant for supplies and spent the summer and fall discussing art ideas and painting landscapes and other objects with their instructor. Design and installation of the show in the campus gallery occurred in January 2007.

21 JDB DVD Sales: On-line E-commerce Application for DVD Sales

Jonathan Cwiak [Green Bay], Brendan Hladilek [Waupaca], and Daniel Kelly [Appleton]
Peter Breznay, Faculty/Staff Mentor; Information and Computing Science

The purpose of the JDB website is to function as a general e-commerce site featuring media sales. It combines cutting edge Internet programming technology with stunning visual art. The JDB website is targeted at consumers interested in media content and should appeal to a broad audience as it features numerous useful functions.

22 Differences in Epiphytic Tank Bromeliad Abundance among Four Costa Rican Forests with Varying Land-use Histories

Sara Dellemann [Maribel]
Matthew Dornbush, Faculty/Staff Mentor; Natural and Applied Sciences-Biology

In January 2007, data was collected from four forest types in lowland rainforest, types include: primary, secondary, abandoned plantation, and abandoned plantation with remnant trees present. Bromeliad abundance was measured by conducting bromeliad counts from each of the forest types. Bromeliad abundance was affected by differences in light availability and the size of available host trees.

23 Music Manager: Integrated Media Player and Media Database Application

Brendan Hladilek [Waupaca], Michael Lindsley [Sheboygan], Michael Tipping [Marshfield], and Judson Anderson [Neenah]
Peter Breznay, Faculty/Staff Mentor; Information and Computing Science

Music Manager is a media player that allows users to play and manage their music collection and video content. Music Manager is a comprehensive home entertainment solution for the use of personal and corporate media collections. The system provides the user with features that are essential in a functional media player.

24 Reducing Childhood Obesity: The Educating Healthy Kids Project

Amanda Jeske [Brown Deer]
Regan Gurung, Faculty/Staff Mentor; Psychology

In the United States, 18.8% of children aged six to 11 and 17.4% of adolescents aged 12 to 19 are overweight (WHO, 2005). This study reports on a regional intervention program, the Educating Healthy Kids Project conducted in Appleton, Wisconsin, designed to increase student knowledge about healthy eating and physical activity.

25 Objectifying the Rich and Famous: Does Sex and Celebrity Matter?

Shannon Kinderman [Oshkosh]
Regan Gurung, Faculty/Staff Mentor; Psychology

Does being famous safeguard you from objectification or make it worse? Data was collected from 48 predominantly Caucasian undergraduate students at UW-Green Bay. Results showed evidence of objectification for both men and women in that the provocative pictures they were shown were objectified more than the non-provocative pictures.

26 The Effects of Sexualized Magazine Advertising on Females' Romantic Relationships

Jenny Olson [Oshkosh]
Georjeanna Wilson-Doenges, Faculty/Staff Mentor; Psychology and Human Development Programs

Sexualized advertising is pervasive and becoming increasingly explicit. To assess the psychological impact of this trend, female undergraduates read a scenario depicting a romantic couple exposed to an advertisement deemed either "high" or "low" arousal. Results from a corresponding, projective-style questionnaire indicated that viewing sexualized imagery negatively affects perceived levels of intimacy with male partners.

27 Reading Between the Lines: a Non-linear Model for Examining how Personality Shapes Cultural Identity across Differing Social Groups

Victoria Oxendine [Green Bay]
Regan Gurung, Faculty/Staff Mentor; Psychology

Eight hundred and fifty students completed a survey consisting of questions regarding their heritage, culture, and personality traits. Responses were analyzed to determine if there are statistical correlations between a cultural identity and personality traits, as well as to determine if statistical differences in cultural identity and social groups exist.

28 Changing Economic Times in Cambodia: An Observational Study

Peter Ruud [La Crosse]
John Stoll, Faculty/Staff Mentor; Economics

Turmoil of auto-genocide, harsh leaders, and meager economic conditions brought Cambodia to a struggling third world country. Spending time in both Cambodia and conducting historical research, the researcher has come to many conclusions regarding how they became a third world country and how they can obtain economic success again.

29**Diversity of Soil-dwelling Invertebrates from Old-field Successional Habitats of Varying Age in the Cofrin Arboretum, Brown County, Wisconsin**

Nicholas Walton [Fort Atkinson]

Michael Draney, Faculty/Staff Mentor; Natural and Applied Science

This project recorded the soil invertebrate community in old-field succession plots and adjacent habitats in Cofrin Arboretum. Six plots were sampled on 14 October 2006. Invertebrates were extracted on Berlese Funnels; four phyla, nine classes and 20 orders were collected. Plots were significantly different in order richness/diversity.

30**Will the Internet Transform Contemporary Campaigning to Sustain the Status Quo?**

Aaron Weinschenk [New Franken]

Terri Johnson, Faculty/Staff Mentor; Political Science

This project traces the role of the Internet in campaigns through time, beginning in 1992, identifying trends regarding online campaigning and answers the question, "Why does the Internet fit in campaigns?" Speculations are made as to where future research and online campaigning might be headed.

UNIVERSITY OF WISCONSIN-LA CROSSE**31****Gene Detection in *Staphylococcus aureus***

Rebecca Bickford [Wautoma]

William Schwan, Faculty/Staff Mentor; Microbiology

Staphylococcus aureus is a ubiquitous bacterium that exists in up to 66% of humans, mainly residing in the nose, ear, and skin; but it can also be an opportunistic pathogen responsible for up to 50,000 deaths per year. Strains have been divided into two main categories: methicillin-sensitive *S. aureus* (MSSA) and methicillin-resistant *S. aureus* (MRSA). The MRSA strains can further be subdivided into community-acquired (CA) and hospital-acquired. The CA-MRSA strains strike healthy individuals who have not been recently hospitalized. In this study, researchers tested for the presence of nine virulence factor genes in two MSSA populations compared to a CA-MRSA population using a polymerase chain reaction-based technology.

32**Cultural Exposure and Ethnic Identity in Korean Adoptees: A Short Report**

Mandy La Breche [Minnetonka, MN]

Betsy Morgan, Faculty/Staff Mentor; Psychology and Matthew Taylor, Faculty/Staff Mentor; University of Missouri-St. Louis

International adoptees, such as Korean adoptees, experience many obstacles, primarily concerning the intertwining of their racial and ethnic origins and American culture. This study investigated the impact of cultural exposure on the racial and ethnic identification of Korean adopted adults. The results from this study may indicate that Korean acculturation activities serve to prompt adoptees to view themselves as "Korean-American" rather than solely Korean.

33**Starbucks in Spain: Researching the Perceptions and Penetration through the Lens of the Diffusion Theory**

April Pikel [Waukesha]

Scott Dickmeyer, Faculty/Staff Mentor; Communication Studies

The phenomenon of globalization has made it important for advertising to demonstrate a respect and understanding of the receiving culture. Starbucks Coffee Company opened up stores in Spain in 2002, where the culture of coffee goes back to the 17th century. Researchers employing diffusion theory seek to explain when and how a new idea is accepted or rejected over time in a given society (Rogers, 1986). The researcher composed 89 surveys in Barcelona and Madrid to incorporate individual attitudes of Spanish towards American organizations.

34**Human Parainfluenza Virus Type 3 Matrix Protein Purification and Generation of Anti-Matrix Antibodies**

Michelle Schweitzer [Greenville]

Michael Hoffman, Faculty/Staff Mentor; Microbiology

Human parainfluenza virus type 3 (HPIV3) causes lower respiratory tract diseases. To understand how these virus particles are made, the investigators analyze the HPIV3 matrix (M) protein, which plays a major role in virus particle synthesis. Analysis of virus particle synthesis could allow development of antiviral drugs.

35**An Evaluation of Physical Impacts in Backcountry Camping Areas at Glacier National Park**

Rachel Tadt [Janesville]

Steven Simpson, Faculty/Staff Mentor; Recreation Management and Therapeutic Recreation

This research project explored how people impact the physical amenities of wilderness areas while participating in recreational activities in the backcountry of Montana's Glacier National Park. The purpose of this project was to determine what physical impacts are commonly found at backcountry campsites, and how these impacts can be evaluated.

UNIVERSITY OF WISCONSIN-MADISON**36****Hydrophobic Protein Matrices (HPM) for Stabilizing Heat-Labile Proteins**

Elizabeth Bobeck [Baraboo]

Mark Cook, Faculty/Staff Mentor; Animal Science

Encapsulation is the only viable technology for the stabilization of select proteins (e.g. antibodies). If the protein was sequestered from water, binding activity could be maintained (100% activity after 60s at 93C in steam). A hydrophobic protein matrix (HPM) was developed to prevent water contact with the antibody. After 60s at 93C steam, 42% antibody binding activity remained in HPM as compared to four percent in control matrix.

37**Wisconsin Small Telescope Array for Radio-waves (WSTAR): Comparing Interferometry Techniques**

Rogério Cardoso [Sao Paulo, Brazil], Kristen Jones [Milwaukee], and Allison Noble [Mequon]
Peter Timbie, Faculty/Staff Mentor; Physics

The researchers propose to build three small radio telescopes, based on the designs of MIT's Haystack Observatory, in order to develop and test new techniques for interferometry. The telescopes will also be used to investigate and map the 21-centimeter line produced by neutral hydrogen in the galaxy.

38**The Fate and Function of Allantoic Mesothelium**

Jacob Daane [Sheboygan]
Karen Downs, Faculty/Staff Mentor; Anatomy

The murine allantois is the precursor to the fetal umbilical cord, which is crucial to the proper development of the fetus. Surrounding the allantois is a thin layer of cells called the mesothelium. Here the team investigates the hypothesis that the allantoic mesothelium plays a vascular role in the allantois.

39**Motherhood Unbound: The Legacy of the Mothers of the Plaza de Mayo**

Elizabeth Gausden [Milwaukee]
Ksenija Bilbija, Faculty/Staff Mentor; Spanish and Portuguese

In 1976, a military dictatorship began in Argentina during which thousands of people were abducted and held without trial. A group of mothers of the missing, the Mothers of the Plaza de Mayo, began demonstrating at the May Square. Through onsite research in Buenos Aires, the researcher explored their transitioning movement.

40**Semi-synthesis of Dihydro-iso-migrastatin and Dihydro-lactimidomycin as Tumor Metastasis Inhibitors**

Yeng Her [Madison]
Ben Shen, Faculty/Staff Mentor; Pharmacy

The aims are to develop new anti-cancer agents through semi-synthesis of dihydro-iso-migrastatin and dihydro-lactimidomycin. Production and isolation of iso-migrastatin and lactimidomycin were obtained from two strands of Streptomyces. Semi-synthesis of dihydro-iso-migrastatin and dihydro-lactimidomycin were prepared via Stryker's reagent. A biological evaluation showed dihydro-iso-migrastatin is weaker than dihydro-lactimidomycin against cancer cell-lines.

41 Investigation of the Role of Leptin and Insulin in Maintaining Energy Metabolism

Jessica Holliday [Seattle, WA]
Dongsheng Cai, Faculty/Staff Mentor; Physiology

The hormones insulin and leptin are sensed by the hypothalamus through activation of POMC/CART positive and AGRP/NPY positive neuronal clusters, and play important roles in maintaining normal body weight. Our aim is to find potential targets to regulate energy metabolism and treat disorders such as obesity and type II diabetes.

42 Bicultural Competence as a Resilience Factor among Ethnic Minority Adolescents

Desiree Kroes [Appleton]
Hardin Coleman, Faculty/Staff Mentor; Counseling Psychology

Academic accomplishment can be promoted in ethnic minority youth by fostering resiliency. Psychosociocultural factors, including bicultural competence, provide cultural diversity coping strategies. This study explores how academically successful minority youth are influenced by family, school, peers, and community. It is hypothesized that bicultural competence enhances personal, academic, and social adjustment.

43 Neural Axon Outgrowth and Guidance and the Role of TAG-1

Nicholas Kuehnel [Kiel]
Mary Halloran, Faculty/Staff Mentor; Zoology/Anatomy

During neural development, axons must be guided towards specific targets. The researchers are studying axon guidance in zebrafish. Investigators made a baseline study of normal development of one axon pathway, then used morpholino antisense to knockdown the cell adhesion molecule TAG-1, and showed that it is critical for proper axon outgrowth.

44 Shared Language or Ethnicity Affecting Academic Outcomes: Is Your Teacher Buffer than Most?

Kathryn Lease [Fennimore]
Erik Carter, Faculty/Staff Mentor; Rehabilitation Psychology and Special Education and Yuri Miyamoto, Faculty/Staff Mentor; Psychology

In this research, the team is looking at how a shared language or ethnicity between a student and teacher can affect, possibly buffer, academic outcomes for at-risk children. Our findings suggest trends in Hmong students' social-emotional development as well as Caucasian students' academic growth. This study holds many implications regarding the dynamic relationship between students and teachers in low-income settings.

45**Computationally Evaluating the Effect of Mutations on the Binding Affinity of the Sir1/Orc1p Complex**

Adeyinka Lesi [Madison]

Julie Mitchell, Faculty/Staff Mentor; Biochemistry

Investigators used computational models to predict which mutations in the Sir1/Orc1p protein complex improve its binding affinity by calculating a change in binding energy using a thermodynamic free energy perturbation cycle. Researchers provided useful information to researchers studying Sir1 and Orc1p without performing costly, exhaustive experimental studies.

46**Characteristics and Classifications of Events in the Geometric Setting**

Joseph Oldenburg [Rochester, MN]

Amir Assadi, Faculty/Staff Mentor; Mathematics

Researchers propose an empirical framework to explore the role of learning and memory in discovery of geometry from observation of events. The main idea is to design an intelligent system that discovers abstract properties of Euclidean and Riemannian geometry from physical experience despite presence of noise and other confounding factors.

UNIVERSITY OF WISCONSIN-MANITOWOC**47****Are You Being Fooled? Sugar vs. Sugar-Free Candy**

Danielle Eisenschink [Valders]

Richard Hein, Faculty/Staff Mentor; Biological Sciences

Does sugar-free candy have less of an effect on blood glucose levels than candy containing sugar? This could be important information for diabetics. Investigators found a much greater effect for sugar free candy than anticipated, but the effect was still less than candy that contained sugar.

48**What's the Buzz? Caffeine and Visual Reaction Time**

Lindsay Lorenz [Two Rivers], Alissa Emond [Manitowoc], and Lisa Tollefson [Two Rivers]

Richard Hein, Faculty/Staff Mentor; Biological Sciences

Students of Anatomy and Physiology designed a research project to measure the effects of the most consumed psychoactive stimulant (Deslandes, A.C., 2004), caffeine, on the visual reaction time of human subjects. Interesting findings include observation of the placebo effect and the different impact caffeine has on regular caffeine users and non-users.

UNIVERSITY OF WISCONSIN-MARATHON COUNTY

49 Hmong Americans and Politics: A Community Project to Increase Political Participation

Jim Lee [Weston], Cheng Lee [Wausau], Xue Lee [Wausau], Bao Thao [Wausau], Kristie Thao [Weston], Johny Thao [Wausau], and Chia Xiong [Wausau]
Eric Giordano, Faculty/Staff Mentor; Political Science

Students explore Asian American political participation nationally and compare findings with a local survey of Hmong American participation in the 2004-2006 elections in Central Wisconsin. Based on scholarly investigation and an original analysis of the survey data, students designed a community-based collaborative initiative to increase Hmong American political participation.

UNIVERSITY OF WISCONSIN-MILWAUKEE

50 Cannabinoid Agonist WIN55,212-2 on Anxiety-like Behavior in Various Mouse Strains

Farah Fatupaito [Madison]
Linda Vaughn, Faculty/Staff Mentor; Nursing

Research shows cannabinoid (CB) drugs may provide treatment alternatives for anxiety, a significant medical concern. In order to develop a working model to test mechanisms of CB drugs on anxiety, several mouse strains were tested with WIN55,212-2, a CB agonist, in the elevated plus-maze test. WIN55,212-2 had no effect on Swiss Webster mice, an anxiogenic effect on the ICR mice, and an anxiolytic effect on CD-1 mice.

51 Use of Rating of Perceived Exertion (RPE) to Determine Exercise Intensity in Athletes

Daniel Lark [Milwaukee]
Ann Snyder, Faculty/Staff Mentor; Human Movement Sciences

This study will provide a model by which the RPE scale can be used in the field with athletes. Data from submaximal and maximal exercise tests of speed skaters, tri-athletes, runners, and cyclists will be used and the relationship between RPE and %VO₂ max and %MHR determined. This model will allow professionals to better quantify the level of exertion an athlete is performing in the field without having to measure heart rate and oxygen uptake.

52 Remodeling Industrial Buildings: Vernacular/ High Style or Modern?

Devon Little [Madison]
Kapila Silva, Faculty/Staff Mentor; Architecture

Based on the newly remodeled industrial vernacular buildings into luxury loft houses in Milwaukee, this study looks into the issue of defining vernacular designs in a modern day context. Some key attributes that the investigator will look at is how these buildings have gone through a process of being used for business/industry into living units and how the architect or developers choose to reuse these buildings in a new unique style of architecture.

53 Analysis of Stone Tool Butchery in an *Odocoileus virginianus* Specimen

Alison Marciniak [Milwaukee]
Jean Hudson, Faculty/Staff Mentor; Anthropology

The present study examines the markings present on bones after an *Odocoileus virginianus*, or white-tailed deer, specimen was experimentally butchered with the aide of stone tools similar to those used in early human history. The skeletal specimens are individually examined both qualitatively and quantitatively for marks and scale sketches are produced. A comparative analysis of the drawings is to be done with the intention of making conclusions as to the types and locations of markings present when a faunal specimen had been butchered.

54 St. Clair River Erosion and Decreasing Lake Michigan-Huron Water Level

John Schafer [Milwaukee]
Harvey Bootsma, Faculty/Staff Mentor; Engineering

The position of this paper, based upon historical construction and dredging records, is that the increased hydraulic scour rate of the St. Clair River is an anthropogenic effect of riverbed armor layer removal influenced by navigational and commercial dredging projects. Hydraulic scour increases the outflow capacity of the St. Clair River which results in a water level decline on Lake Michigan-Huron. The goal of this technical paper is to summarize the causal relationship between St. Clair River erosion and decreasing Lake Michigan-Huron water level.

UNIVERSITY OF WISCONSIN-OSHKOSH

55 Differences in *Bacteroides* 16s rRNA Gene From Avian Waste Sources

Aaron Burg [New London] and Sonja Jeter [Appleton]
Colleen McDermott, Faculty/Staff Mentor; Biology and Microbiology

The BEACH Act requires that beaches are monitored for fecal contamination to prevent bathers' exposure to microorganisms. *Bacteroides* has been suggested as an indicator, since it is found in fecal material in large numbers, and is unlikely to persist in the beach environment. The goal of this study was to isolate *Bacteriodes* DNA from avian waste and identify unique host-specific sequences.

56 Effects of Priming Mortality Salience on Shifts in Political Ideology

Courtney Christopherson [Gays Mills] and Erica Harwell [West Allis]
Tammy Kadah-Ammeter, Faculty/Staff Mentor; Psychology

This study added a control condition and replicated Jost (2004). A 3 x 3 (Prime X Political Orientation) analysis of variance for mean conservative support score for 90 undergraduates indicated significantly higher scores in the pain condition compared to the neutral condition. Additional research for neutral primes is needed.

57 Determination of Nitrate Retention Capacity in a Wisconsin Sand Plains Stream

David Flagel [Markesan]

Robert Stelzer, Faculty/Staff Mentor; Biology and Microbiology and Maureen Muldoon,
Faculty/Staff Mentor; Geology

Excess amounts of nitrogen can cause several water quality problems in nature. This study looks at variances in nitrate for both groundwater inputs and stream water in a substantially forested sand county stream. The data show that Emmons Creek is being overloaded with nitrate, with groundwater being the important contributor.

58 A Comparison of MALDI-TOF-MS and REP-PCR Methods to Fingerprint *Enterococcus*

Weston Fredenberg [Shawano] and Rebecca Giebel [Fond du Lac]

Todd Sandrin, Faculty/Staff Mentor; Biology and Microbiology

The research team developed a rapid, mass spectrometry-based approach to bacterial source tracking and applied it to a collection of 21 *Enterococcus* isolates from seven different sources. Our results suggest that, while needing further development, our MALDI-based approach more readily provides useful fingerprint data for *Enterococcus* than a commonly used PCR-based method.

59 *E. coli* and Lake Superior Recreational Beaches

Sarah Hughes [Rice Lake]

Gregory Kleinheinz, Faculty/Staff Mentor; Biology and Microbiology

Increased usage of public beaches and heightened awareness of microbial contamination have led to passage of the U.S. BEACH Act in 2000. This program was implemented in Wisconsin during summer 2003. This research documents levels of total coliforms and of *E. coli* at 27 beaches in Lake Superior, Wisconsin, during the past several sampling seasons.

60 Stellar Distribution in the Fourth Galactic Quadrant

Anthony Kuchera [Racine]

Nadia Kaltcheva, Faculty/Staff Mentor; Physics and Astronomy

The aim of the present study is to contribute to a better understanding of the stellar distribution in the galactic longitude range between $l=283^\circ$ and $l=294^\circ$. Investigators present an overall photometric investigation which allows us to derive homogeneous stellar distances and discuss the spatial structure and star-forming history of this part of the fourth Galactic quadrant.

61**Comparison of Field Observation Methods for Black Howler Monkey (*Alouatta pigra*) Hand Use in Belize, Central America**

Jennifer Mosley [Ellijay, GA], Alyssa Dysert [Random Lake], Marianne Radley [Oshkosh], and Amy Rolph [Omro]

Kathleen Stetter, Faculty/Staff Mentor; Psychology

Correlations among field methods for assessing biased hand use in 15 black howler monkeys suggest that any of these methods might be used to produce comparable results. The first reach within a feeding bout was most sensitive in identifying biased hand use when compared to one-, two-, or three-minute scan sampling.

62**Neighborhood Cohesiveness, Informal Social Control, and Crime Prevention**

Kristin Reschenberg [Oshkosh]

Chris Rose, Faculty/Staff Mentor; Public Affairs/Criminal Justice

The poster presents the results of a quantitative analysis, which examines the degree of social cohesiveness within particular neighborhoods. Path analysis is used to examine the impact that social cohesiveness has on informal social control and, ultimately, crime prevention. The analysis is informed by social and cultural disorganization theory.

63**Education, Inequality, and International Trade: Revisiting the Kuznets Curve**

Ahmed Sharif [Fond du Lac]

Marianne Johnson, Faculty/Staff Mentor; Economics and Kevin McGee, Faculty/Staff Mentor; Economics

The student investigates the relationship between income inequality and a number of economic and social variables in 36 countries. Education statistically significantly lessens income inequality, while greater international trade increases income inequality. This result contradicts the well-known Kuznets Curve. Other variables statistically found to explain income inequality include inflation and percentage of rural population.

64**Evolution of UV Tolerance in Plants**

Mohamed Yakub [Appleton]

Lisa Dorn, Faculty/Staff Mentor; Biology and Microbiology

The researcher tested UV tolerance in plants. If UV levels rise, plants with genes for UV tolerance will survive and reproduce. To determine genetic variation for UV tolerance, the student examined responses of *Arabidopsis thaliana* to UV radiation. Findings indicate UV's affect on plants depended on genes and other environmental components.

65 Evaluation of the Microbial Levels in Sand and their Affect on Beach Water

Tabitha Zehms [De Pere]
Gregory Kleinheinz, Faculty/Staff Mentor; Biology and Microbiology

The seasonal variations and patterns of *E. coli* in our coastal waters have been closely monitored since 2003, due to implementation of the U.S. EPA BEACH Act. This project investigates the levels of *E. coli* and enterococci in the sand at selected beaches, and the relationship between these sand-microbe levels and levels of microbes in the corresponding beach water.

UNIVERSITY OF WISCONSIN-PARKSIDE

66 Analysis of Ceramics from the Vieau Trade Post, Franksville, Wisconsin

Rick Edwards [Twin Lakes]
Robert Sasso, Faculty/Staff Mentor; Anthropology

The Vieau Fur Trade Post was an important point of cultural interaction and exchange between Euro Americans and Native Americans from the 1820s until 1837. Archaeological excavation has recovered a significant amount of ceramic material dating from early 1800. Analysis of these artifacts provides greater insight to the site's history.

67 Estimating Precambrian Basement using Coupled 3D Model of Gravity and Aeromagnetic Data

Stephan Kurdas [Racine]
John Skalbeck, Faculty/Staff Mentor; Geosciences

The complex surface of the Precambrian basement in Fond du Lac County leads to difficulties in sighting future groundwater wells and developing groundwater models of flow patterns. Coupled 3D modeling of aeromagnetic and gravity data improves the estimate of the Precambrian basement surface elevation, yielding more accurate information for hydrogeologists.

68 Visual Survey Method for Detection of the Emerald Ash Borer

Patrick Liesch [Franksville]
M. Scott Thomson, Faculty/Staff Mentor; Biological Sciences

The Emerald Ash Borer (EAB) is responsible for the deaths of as many as 25 million ash trees. To help control the EAB, Wisconsin's Cooperative Emerald Ash Borer Project is taking preemptive measures. This project illustrates the results of visual inspections conducted during the summers of 2005 and 2006.

69 Characterization of a 5'-3' Exoribonuclease in the Alga *Chlamydomonas reinhardtii*

Edward Manteufel [Sturtevant]
David Higgs, Faculty/Staff Mentor; Biological Sciences

Gene expression is regulated at many steps, including the degradation of mRNAs. The team investigated a nucleus-encoded CrXrn1 gene in the single-celled alga *Chlamydomonas reinhardtii* to determine if it is responsible for the known 5'-3' exoribonuclease activity in the chloroplast. This is thought to have a role in regulating photosynthesis.

70 Crafts on Wheels Website Construction Project

Sabha Museteif [Racine]
Suresh Chalasani, Faculty/Staff Mentor; Management Information Systems

Crafts on Wheels has been in business for over 20 years in Kenosha, Wisconsin. The primary goals for this project were to create a new marketing and distribution channel via the Internet, and to create an effective vehicle for communication between Crafts on Wheels' current and prospective customers.

71 Modine Military Vehicle Market Study

Zak Smith [Burlington]
Brad Piazza, Faculty/Staff Mentor; Business

Modine Manufacturing Company's products are widely used in commercial and home sectors. However, they have a limited presence in military markets. For this project, researchers performed an extensive market analysis of opportunities in global military markets, located key customers and competitors, and determined the market size and segments for Modine.

72 Cleaning Up the Land: Phytoremediation of Lead and Chromium

Jon Stehlik [Kenosha]
Lori Allen, Faculty/Staff Mentor; Chemistry

Lead and chromium are toxic heavy metals, especially for children. In this project, investigators report on the use of Canada Rye grass and the fungus *Glomus intraradices* to facilitate the removal of both lead and chromium from soil at a site that is earmarked for usage as a public park.

UNIVERSITY OF WISCONSIN-PLATTEVILLE

73 The Study of DNA Cleavage Activity of Diazonium Salts

Elaine Hildebrandt [Neenah]
Qiong (June) Li, Faculty/Staff Mentor; Chemistry and Engineering Physics

The structure-activity relationships in the cleavage of DNA by arenediazonium salts are to be investigated. A series of arenediazonium salts with various kinds of substituents are being synthesized and their activities for DNA cleavage will be investigated. A more efficient DNA cleaving reagent may be obtained through research.

74 Analysis of the Blue River

Daniel Hoesly [Monroe]
Kristopher Wright, Faculty/Staff Mentor; Biology

This project examines water temperature along the Blue River in Grant County. There was high variability among the sites; however, most sites rarely exceeded optimal/extreme temperatures for both brook trout (*Salvelinus fontinalis*) and brown trout (*Salmo trutta*).

75 Low Cost Production of Spectrometer Drift Correct Standards

Phillip Kubichka [Chilton]
Kyle Metzloff, Faculty/Staff Mentor; Industrial Studies

The project involves creating a method and procedure to produce spectrometer standardizing material locally. This would not only reduce production cost, but would also offer the opportunity to more accurately calibrate an emission spectrometer. Overall an increased level of chemical accuracy and noticeable cost savings would result.

UNIVERSITY OF WISCONSIN-RIVER FALLS

76 Development of Artificial-tissues (ATs) from Early Avian Embryonic Cardiac Tissues Strongly Implies a Contribution from Tetal Stem Cell Populations

Travis Cordie [Woodbury, MN], Chris Wenig [Chilton], Michelle Willette [Buffalo, MN], and Tory Schaff [Prior Lake, MN]
Timothy Lyden, Faculty/Staff Development; Biology

In this project our laboratory has been focused on the application of a unique new natural scaffolding material to generate long-term three-dimensional cultures of early avian embryonic cardiac tissue. These samples were harvested from two-three and five-seven day stage chicken embryos and then maintained for up to three months in continuous culture.

77***Quadrula metanevra* glochidia metamorphose on select minnows**

Andrea Crownhart [Elmwood]

John Wheeler, Faculty/Staff Mentor; Biology

The monkeyface (*Quadrula metanevra*) is classified as threatened in Wisconsin. Many life history details are unknown, including the identities of larval hosts. The suitability of 47 fish species was tested, and metamorphosis was observed on four minnows in the laboratory: spotfin shiner, bluntnose minnow, creek chub, and eastern blacknose dace.

78**Efforts to Analyze Nutrient Management without the Use of Commercial Fertilizer**

Amy Robak [Oak Park, MN]

Alan Stemper, Faculty/Staff Mentor; University of Minnesota Extension, Dan Martens, Faculty/Staff Mentor; University of Minnesota Extension, Gerry Maciej, Mentor; Benton County, Minnesota, and Timothy Lyden, Faculty/Staff Mentor; Biology

The purpose of this project is to research how corn will perform without the use of commercial fertilizer. The team researched and compared nutrient management recommendations prepared by the University of Minnesota and grew corn on test plots areas to help compare and contrast yield calculations in the fall. Analysis of the resultant data is on-going.

79**Studies of Artificial-tissues (ATs) from Early Avian Embryonic Neural Tissues Illustrate in-vitro Differentiation and Large Scale Development**

Tory Schaff [Prior Lake, MN], Travis Cordie [Woodbury, MN], Chris Wenig [Chilton], and Michelle Willette [Buffalo, MN]

Timothy Lyden, Faculty/Staff Mentor; Biology

In this project, investigators harvested fore, mid, and hind brain samples from two-seven day chicken embryos. These were then introduced to 3D scaffolds and cultured for extended periods, in some cases for as much as six+ months. Tissues harvested from various brain regions have shown a distinctly different pattern of behavior once explanted onto scaffolds.

80**Video Game Design Using New-age Development Processes, Tools, and Design**

Kyle Thompson [Osceola] and Da Vis Linder [Minneapolis, MN]

Anthony Varghese, Faculty/Staff Mentor; Computer Science and Information Systems

This project set out to develop a video game using new streamline game development techniques and a modern, featureful game development engine/editor. This explores how video games and other real-time interactive 3D software can be developed rapidly and efficiently. The game developed exhibits advanced physics, destruction, and realism.

81**Evidence of the “Mitotic Catastrophe” Programmed Cell Death Pathway in Testing of Synthetic Compounds**

Danielle Tucker [Cottage Grove, MN], Amanda Miller [LeCenter, MN], Tracy Nelson [Bay City], Caroline Martin [Superior], Brianna Zemke [Deer Park], and Nicole Salwasser [St. Paul Park, MN]
Timothy Lyden, Faculty/Staff Mentor; Biology and Karl Peterson, Faculty/Staff Mentor; Chemistry

In collaboration with the UW-River Falls Department of Chemistry, studies have been ongoing to evaluate the potential “apoptosis-inducing” effect of a library of synthetic N-Phenethylpyridinecarboxamides. To date, the team has established that these compounds induce significant programmed cell death but that the majority of these effects are not classic apoptosis.

82**The Study of Early Avian Thoracic Neural Crest Cells and Neural Tube Region Tissues in 3D Artificial-tissue (ATs) Cultures**

Chris Wenig [Chilton], Travis Cordie [Woodbury, MN], Michelle Willette [Buffalo, MN], and Tory Schaff [Prior Lake, MN]
Timothy Lyden, Faculty/Staff Mentor; Biology

In this presentation, the researchers report on the development of complex composite ATs from the dorsal mid-thoracic region of early chick embryos. Our specific aim in these studies is to examine the migration and/or differentiation of neural crest cells within the context of ATs cultures. This approach has proven to be an effective in-vitro model of neural crest cell behavior.

83**The Culture of Early Avian Embryonic Lung Samples in 3D Artificial-tissue (ATs) Cultures**

Michelle Willette [Buffalo, MN], Travis Cordie [Woodbury, MN], Chris Wenig [Chilton], and Tory Schaff [Prior Lake, MN]
Timothy Lyden, Faculty/Staff Mentor; Biology

In these studies, the growth capacity of embryonic avian lung tissue on natural 3D scaffolding materials has been examined. Our working hypothesis was that the growth and differentiation of both mesenchymal and ectodermal cellular components of lung rudiments would occur under these culture conditions. The resultant ATs therefore effectively model early avian lung tissue.

84**Characterization of avian embryonic artificial-tissues (ATs) and monolayer cultures of mesenchymal origin derived from early long bone rudiments**

Erik Wood [New Richmond], Travis Cordie [Woodbury, MN], Chris Wenig [Chilton], Michelle Willette [Buffalo, MN], Tory Schaff [Prior Lake, MN]
Timothy Lyden, Faculty/Staff Mentor; Biology

In this project, a unique new natural scaffolding material was employed to test the potential of early avian long bone rudiments for attachment and spread onto a 3D matrix. Here the team details results obtained with extended scaffold culture of very early cartilaginous molds of embryonic long bones and the resulting monolayer cultures.

UNIVERSITY OF WISCONSIN-ROCK COUNTY

85 Wisconsin's Marriage Amendment

Amanda Bolan [Janesville]
Nathan Zook, Faculty/Staff Mentor; Political Science

The student investigator has drawn a diagram illustrating the political coalitions that formed in 2006 during the debate over the marriage amendment in Wisconsin. The researcher highlights the divisions with the issue network by analyzing the impact of grassroots movements on state politics.

86 Wisconsin's Dairy Businesses

Bobbi Jo Wellnitz [Footville]
Nathan Zook, Faculty/Staff Mentor; Political Science

The researcher has drawn a diagram illustrating the relationship between Wisconsin's large dairies and its small farms. The investigator highlights political issue networks that have developed within the dairy industry dealing with land use and regulation to analyze the impact of localized political action.

87 The Development of a Soy-based Nutrient Media that Supports Growth of Commonly Used Bacteria in the Microbiology Lab

Kyler Crawford [Fitchburg] and Rachel Mosher [Madison]
Andrea Lukowiak, Faculty Mentor; Biological Sciences

Growth media commonly used in microbiology labs are composed largely from animal-based powders. After many variations, investigators developed an animal-free, soy-based medium which supports bacterial growth comparable to many of the commercially available animal-based media.

UNIVERSITY OF WISCONSIN-STEVENS POINT

88 Methods to Assess the Spatial Extent and Density of Bulrush [*Schoenoplectus acutus*] in Clark Lake, Door County, Wisconsin

Justin Barrick [Hatley]
Ronald Crunkilton, Faculty/Staff Mentor; Water Resources

The study objectives were to investigate bulrush density and spatial extent to provide a framework for long-term monitoring of the health and remediation of bulrush by Lake Association volunteers. Implications of the lake's impoundment on the health of bulrush and possible impacts on the lake's ecology were also explored. Methodology was established in September 2006 to collect baseline data of bulrush densities for use in evaluating long-term changes in bulrush beds. The entire lake's bulrush community was mapped and compared to historical observations. This process provided a framework for quantitative comparison in the future.

89**Outcomes For College Students Choosing Team-testing: A Follow-up Study**

Chasidy Bol [Spring Valley], Natasha Denk [Brookfield], Rhea Owens [Racine], and Catherine Sheehan [Stevens Point]

Jeana Magyar-Moe, Faculty/Staff Mentor; Psychology

Past research indicates that when college students are allowed to test in two-person teams, learning is facilitated, course exam scores go up, and positive attitudes toward the team-testing experience are apparent. This study was conducted in order to replicate and expand the findings of previous research. Overall, the host of constructs evaluated in the study facilitate understanding of the benefits and potential problems associated with team-testing and the characteristics of students who may profit most from a cooperative exam format.

90**Electrical Conductivity of Ag_7PSe_6 and Cu_7PSe_6**

Chelsey Driessen [Kimberly] and Dean Pawlisch [Brodhead]

Bob Beeken, Faculty/Staff Mentor; Physics and Astronomy

Ag_7PSe_6 and Cu_7PSe_6 belong to a family of compounds known to possess high electrical conductivity that results from the migration of metal cations through a crystalline array defined by the anion species. Curiously, the temperature dependence of electrical conductivity for these two compounds has not yet been reported in the literature. Our measurements show that the slope of the temperature-dependent conductivity changes at a temperature of 406 K for the Ag_7PSe_6 compound. In the case of Cu_7PSe_6 , two discontinuous jumps in electrical conductivity are observed, one at a temperature of 251 K and the other at a temperature of 325 K.

91**Museum of Twentieth Century Art**

Christine Janssen [Sun Prairie]

Nisha Fernando, Faculty/Staff Mentor; Interior Architecture

The design for Twentieth Century Art Museum in Chicago houses a permanent collection of surrealist paintings and sculptures of Picasso, Dali, and Ernst. It also provides space for temporary exhibitions as well as a gift store, restaurant, library, and offices. The design is contemporary modern with an organic theme, and aesthetics of black and white with red accents. Work of each artist is placed in spatial pods, separating the viewer's experience yet linking them to the theme of the museum.

92**Native American Cultural Heritage Center**

Christine Janssen [Sun Prairie]

Nisha Fernando, Faculty/Staff Mentor; Interior Architecture

The NACHC is a gathering place for Native Americans to learn about their heritage, hold cultural activities, and to bridge Native American and Euro American cultures in the locale. The interior includes an activity room, artifacts display area, café, restrooms, and reception area. Following an open floor plan representing traditional architecture, natural materials, and culturally meaningful colors, the design symbolizes the identity of Native American culture. It also exemplifies the cultural links to earth-friendly design.

93 Parental Involvement in Academics During Emerging Adulthood

Kristina Larsen [Schofield] and Ryan Frasch [Rosholt]
Debbie Palmer, Faculty/Staff Mentor; Psychology

The team researched parental involvement in college academics; these findings were presented at the conference on Emerging Adulthood. Parental involvement was high; some students desired more involvement. Conflict was infrequent and concerned finances and intrusive behaviors. Conflict with mothers was linked to lower grade point averages.

94 Development of an Aquatic Management Plan for Springville Pond, Portage County, Wisconsin

Kelly Mumm [Lake Mills]
Nancy Turyk, Faculty/Staff Mentor; Center for Watershed Science

The student researcher has composed an Aquatic Management Plan [APM] for Springville Pond located in Plover, Wisconsin. An Aquatic Management Plan [APM] is a significant piece of a lake management plan that helps to optimize wildlife, fisheries, recreation, and plant ecosystems through short-term and long-term options. The APM was focused on addressing the aquatic invasive plant species Eurasian water milfoil and includes a combination of control techniques including mechanical harvesting, chemical application, winter drawdown, weevil enhancement, and continued monitoring.

95 Hmong Cultural Heritage Center

Cara Riederer [Fond du Lac]
Nisha Fernando, Faculty/Staff Mentor; Interior Architecture

This project involved designing a Cultural Heritage Center for the Hmong culture. The researcher conducted interviews with the local Hmong community and did research on their cultural aspects before designing the Center. The final design incorporated important Hmong design elements, including an open floor plan, raised platforms, simple furniture, and use of bamboo. The design also examined sustainable aspects of design.

UNIVERSITY OF WISCONSIN-STOUT

96 Secreted Protein Screen for Zebrafish Pigment Formation using Antisense Morpholinos

Tyson Brown [Elk River, MN], Heather Patnode [Menomonee], and Rebecca Valaske [Colfax]
Michael Pickart, Faculty/Staff Mentor; Biology and Applied Science

Antisense morpholinos targeting secreted proteins from an ongoing screen with the University of Minnesota were assessed for their ability to “knock down” pigment related gene expression in zebrafish (*Danio rerio*). Analysis of such genes leads to a greater understanding of pigment biology and may have potential biomedical applications as well.

97**The Effect of Jealousy on People's Outlook for Future Relations**

Krista Jahimiak [La Crosse]

Peizhong Li, Faculty/Staff Mentor; Psychology

This research is designed to demonstrate that jealousy has a negative impact on people's outlook for future relations. An experiment is designed to show that using relationship scenarios of strangers to induce jealousy can lead college students to become less optimistic about their own future family and romantic relations.

98**Desensitization to Violence: Do Violent Video Games have an Effect?**

Matthew Jenks [Apple Valley, MN], Justin Aoki [Eden Prairie, MN], Chelsea Trieber [White Bear Lake, MN], and Bianca Sweeney [Sfantu Gheorghe, Covasna (Romania)]

Richard Tafalla, Faculty/Staff Mentor; Psychology

This study compared 55 participants playing an older version of the violent video game DOOM to playing the new, more realistic, DOOM3. Results show significantly higher presence, spatial presence, and realism scores with DOOM3, and significantly greater blood pressure, heart rate, and electrodermal response. Respiration was lower with DOOM3.

99**The Effect of Arousing Images and Personality on Mood and Cognitive Performance**

Trevor Meyer [Eau Claire] and Robert Schultz [Appleton]

Peizhong Li, Faculty/Staff Mentor; Psychology

Images depicting unusual events (e.g., aggression and tragedy) increase viewers' physiological arousal. This research is designed to demonstrate that the effects of arousing images on mood and cognitive performance depend upon viewers' personality. More specifically, arousing images have a more negative impact on introverts than extroverts.

100**Potential Consumers Over-generalize Product Information from Authoritative Sources**

Grant Michelsen-Pierce [Appleton]

Peizhong Li, Faculty/Staff Mentor; Psychology

Consumers often make inferences about product characteristics which are relevant to their purchasing decisions but not covered in the advertisement. In this research, information from authoritative sources about a product's (an automobile) strong features in one aspect (safety) creates a more positive image on unrelated aspects (style and comfort).

101**Tissue Culture of Human Melanocytes for use in the Validation of Pigment Altering Chemicals**

Rebecca Mijal [Elk Mound], Cole Segerstrom [Mondovi], Levi Stodola [Sarona], and Tyson Brown [Elk River, MN]

Michael Pickart, Faculty/Staff Mentor; Biology and Applied Science

This study investigated the growth of human skin melanocytes. Chemicals of the Chembridge DiverSet small molecule library were used to assess their potential to alter pigment in human melanocytes. These results may assist in understanding human skin disorders and products or therapies commercially available to treat them.

102**Analysis of Gene Expression in Zebrafish Embryos**

Heather Patnode [Menomonie], Rebecca Valaske [Colfax], Tyson Brown [Elk River, MN], and Levi Stodola [Sarona]

Michael Pickart, Faculty/Staff Mentor; Biology and Applied Science Program

The purpose of this study was to identify alterations in tissue-specific gene expression in developing zebrafish embryos following chemical or antisense treatment. Since zebrafish share with humans many of the same biological processes of vertebrate development, these results may impact the understanding of gene expression during human development and disease.

103**Faces of Racial Minorities Activate the Behavior Inhibition System**

Jordan Wheeler [Elmwood]

Peizhong Li, Faculty/Staff Mentor; Psychology

Due to lack of interracial contact and familiarity, interacting with racial minorities involves ambiguity and uncertainty in terms of communication norms and interpreting the target's intentions and reactions. In our experiments, initial exposure to minority faces triggers inhibition of on-going behavior in white individuals, indicating increased vigilance and self-regulation.

UNIVERSITY OF WISCONSIN-SUPERIOR**104****Evaluation of Shipper Requirements and Rail Service for Northern Wisconsin and Upper Peninsula of Michigan**

Nariman Aydamirov [Baku, Azerbaijan]

Richard Stewart, Faculty/Staff Mentor; Transportation and Logistics Management

This study examined the rail service for Northern Wisconsin and the Upper Peninsula of Michigan. The study employed surveys, stakeholder meetings, and interviews to assist in evaluating and improving rail service in the region. A rail tool kit was developed to assist shippers in using rail. A prototype Geographic Information System was explored for use in promoting economic development of rail sites. Shortline railroads as well as Class 1 railroad operators were interviewed to establish carrier issues in providing rail service to the region. The study considered the development of transload centers and the modification of business plans to accommodate shipper requirements.

105**Prince Rupert to the Twin Cities: The Potential Value Added of a New Intermodal Freight Service**

Eldon Eagle [Superior]

Richard Stewart, Faculty/Staff Mentor; Transportation and Logistics Management

A new Canadian container port being developed in Prince Rupert, British Columbia opens a new intermodal freight corridor operated by the Canadian National Railroad to serve the Midwest United States for trade with East Asian countries. This research paper particularly explored new potential intermodal services to the Twin Cities region. The new Prince Rupert route has potential to serve the Twin Cities through two gateways; Chicago, Illinois and the Twin Ports of Duluth, Minnesota and Superior, Wisconsin. The advantages and disadvantages of using each gateway are discussed. The paper examines on both routes the issues of: transit time, terminal availability, drayage, corridor congestion, asset utilization, interest inventory costs, freight rates, growth potential, circuitry, and transloading. It provides a basis for more studies in the future on this new freight corridor of significant economic values.

UNIVERSITY OF WISCONSIN-WASHINGTON COUNTY**106****PRAXIS-based Learning Objects in Chemistry**

William Wobig [Jackson], Samantha Napierala [Cedarburg], Stefan Rank [West Bend], Zachary Zander [Kewaskum], and Michael Behn [West Bend]

Mohamed Ayoub, Faculty/Staff Mentor; Chemistry

As part of the UW System “Remembering Math and Science” project, the researchers developed learning objects for the chemistry portion of the PRAXIS exam for the middle school level. The team illustrates the process of developing the learning objects for heat and energy, balancing chemical equations, atomic structure, and the oxidation number for chemical elements.

UNIVERSITY OF WISCONSIN-WAUKESHA**107****Symbiotic Relationship between Aquaculture and Manure Digestion**

Chris Zahm [Oconomowoc] and Laura Ziegler [Waukesha]

Paul Zillgitt, Faculty/Staff Mentor; Biological Sciences

The research team is working to establish a symbiotic relationship between aquaculture to create bio-diesel and the anaerobic digestion of cow manure in the production of methane gas. Our ultimate goal is to create a system that will allow farmers to dispose of their excess wastes economically while generating a renewable source of fuels.

108 Do Mallards Display a Challenge Effect?

Brian Darkow [Cottage Grove]
Ellen Davis, Faculty/Staff Mentor; Biological Sciences

Researchers studied whether hormones associated with aggression are influenced by social challenges. Previous studies suggest that testosterone increases when the number of social challenges increases. While progesterone inhibits aggression due to testosterone, progesterone may also decrease during social challenges. Do male mallards display hormonal changes due to social challenges?

109 Models of the Effect of Gaseous Drag on the Accretion of Intergalactic Clouds

Travis Fischer [Slinger]
Robert Benjamin, Faculty/Staff Mentor; Physics

Neutral gas clouds are observed outside the disks of ordinary spiral galaxies like the Milky Way. The high velocity clouds of our own Galaxy, assumed to be within 200 kpc, show evidence of interaction with the gaseous halo. Investigators present models of the orbital decay of such clouds over time for a realistic model of the density and velocity structure of the interstellar Galactic disk and halo.

110 Sexual Misconduct of Nuns in Twelfth Century Norman Convents

Stacie Gibbons [Sharon]
Jennifer Thibodeaux, Faculty/Staff Mentor; History

Thirteenth century Norman nuns were often ridiculed for sexual incontinence. Using primary source evidence it becomes clear that these nuns were not incontinent, and were less incontinent than male church officials. In addition, their reasons for remaining chaste offer an informative look at the lives of thirteenth century Norman women.

111 Forensic Analysis of DNA Extraction Success and Degradation of Hair Under Diverse Environmental Conditions

Brittany Paulson [Waukesha]
Kristen Crossgrove, Faculty/Staff Mentor; Biological Sciences and Peter Killoran, Faculty/Staff Mentor; Sociology and Anthropology

Researchers are testing the effects of soil, water, and air on DNA degradation in hair over time and trying to determine the best part of the hair from which to extract DNA. Investigators present data on whether the hair shaft or follicle is a better source under different conditions.

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89	Chasidy	Bol	UW-Stevens Point	Spring Valley	27
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55	Aaron	Burg	UW-Oshkosh	New London	18
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82	Travis	Cordie	UW-River Falls	Woodbury, MN	25
83	Travis	Cordie	UW-River Falls	Woodbury, MN	25
84	Travis	Cordie	UW-River Falls	Woodbury, MN	25
87	Kyler	Crawford	UW-Rock County	Fitchburg	26
77	Andrea	Crownhart	UW-River Falls	Elmwood	24
21	Jonathon	Cwiak	UW-Green Bay	Green Bay	10
38	Jacob	Daane	UW-Madison	Sheboygan	14
108	Brian	Darkow	UW-Whitewater	Cottage Grove	32
22	Sara	Dellemann	UW-Green Bay	Maribel	10
89	Natasha	Denk	UW-Stevens Point	Brookfield	27
12	Arjun	Dhilon	UW-Fox Valley	Menasha	7
90	Chelsey	Driessen	UW-Stevens Point	Kimberly	27
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25	Shannon	Kinderman	UW-Green Bay	Oshkosh	11
1	Joni	Klinge	UW-Baraboo/Sauk County	Baraboo	5
17	Gregory	Kokke	UW-Fox Valley	Appleton	9
42	Desiree	Kroes	UW-Madison	Appleton	15
75	Phillip	Kubichka	UW-Platteville	Chilton	23
60	Anthony	Kuchera	UW-Oshkosh	Racine	19
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49	Cheng	Lee	UW-Marathon County	Wausau	17
49	Jim	Lee	UW-Marathon County	Weston	17
49	Xue	Lee	UW-Marathon County	Wausau	17
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70	Sabha	Museteif	UW-Parkside	Racine	22
106	Samantha	Napierala	UW-Washington County	Cedarburg	31
81	Tracy	Nelson	UW-River Falls	Bay City	25
37	Allison	Noble	UW-Madison	Mequon	14
46	Joseph	Oldenburg	UW-Madison	Rochester, MN	16
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26	Jenny	Olson	UW-Green Bay	Oshkosh	11
89	Rhea	Owens	UW-Stevens Point	Racine	27
27	Victoria	Oxendine	UW-Green Bay	Green Bay	11
9	Stephanie	Pahl	UW-Eau Claire	Green Bay	7
96	Heather	Patnode	UW-Stout	Menomonie	28
102	Heather	Patnode	UW-Stout	Menomonie	30
111	Brittany	Paulson	UW-Whitewater	Waukesha	32
90	Dean	Pawlisch	UW-Stevens Point	Brodhead	27
33	April	Pekel	UW-Lacrosse	Waukesha	13
61	Marianne	Radley	UW-Oshkosh	Oshkosh	20
106	Stefan	Rank	UW-Washington County	West Bend	31
62	Kristin	Reschenberg	UW-Oshkosh	Oshkosh	20
13	Emily	Ricks	UW-Fox Valley	Appleton	8
95	Cara	Riederer	UW-Stevens Point	Fond du Lac	28
78	Amy	Robak	UW-River Falls	Oak Park, MN	24
15	Samantha	Robinson	UW-Fox Valley	Appleton	8
61	Amy	Rolph	UW-Oshkosh	Omro	20
19	Ryan	Rooyackers	UW-Fox Valley	Kaukauna	9
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28	Peter	Ruud	UW-Green Bay	La Crosse	11
81	Nicole	Salwasser	UW-River Falls	St. Paul Park, MN	25
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54	John	Schafer	UW-Milwaukee	Milwaukee	18
76	Tory	Schaff	UW-River Falls	Prior Lake, MN	23
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99	Robert	Schultz	UW-Stout	Appleton	29
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18	Katie	Streufert	UW-Fox Valley	Appleton	9
5	Amanda	Sutherland	UW-Eau Claire	Gillett	6
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35	Rachel	Tadt	UW-Lacrosse	Janesville	13
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29	Nicholas	Walton	UW-Green Bay	Fort Atkinson	12
30	Aaron	Weinschenk	UW-Green Bay	New Franken	12
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15	Samantha	Robinson	UW-Fox Valley	Appleton	8
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81	Tracy	Nelson	UW-River Falls	Bay City	25
90	Dean	Pawlisch	UW-Stevens Point	Brodhead	27
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84	Chris	Wenig	UW-River Falls	Chilton	25
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108	Brian	Darkow	UW-Whitewater	Cottage Grove	32
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98	Justin	Aoki	UW-Stout	Eden Prairie, MN	29
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96	Tyson	Brown	UW-Stout	Elk River, MN	28
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61	Jennifer	Mosley	UW-Oshkosh	Ellijay, GA	20
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23	Michael	Tipping	UW-Green Bay	Marshfield	10
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37	Allison	Noble	UW-Madison	Mequon	14
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102	Levi	Stodola	UW-Stout	Sarona	30
93	Kristina	Larsen	UW-Stevens Point	Schofield	28
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				Sfantu Gheorghe, Covasna (Romania)	
98	Bianca	Sweeney	UW-Stout	(Romania)	29
110	Stacie	Gibbons	UW-Whitewater	Sharon	32
58	Weston	Fredenberg	UW-Oshkosh	Shawano	19
38	Jacob	Daane	UW-Madison	Sheboygan	14
23	Michael	Lindsley	UW-Green Bay	Sheboygan	10
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89	Chasidy	Bol	UW-Stevens Point	Spring Valley	27
81	Nicole	Salwasser	UW-River Falls	St. Paul Park, MN	25
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92	Christine	Janssen	UW-Stevens Point	Sun Prairie	27
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33	April	Pekel	UW-Lacrosse	Waukesha	13
107	Laura	Ziegler	UW-Waukesha	Waukesha	31
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23	Brendan	Hladilek	UW-Green Bay	Waupaca	10
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49	Xue	Lee	UW-Marathon County	Wausau	17
49	Bao	Thao	UW-Marathon County	Wausau	17
49	Johney	Thao	UW-Marathon County	Wausau	17
49	Chia	Xiong	UW-Marathon County	Wausau	17
31	Rebecca	Bickford	UW-Lacrosse	Wautoma	12
56	Erica	Harwell	UW-Oshkosh	West Allis	18
106	Michael	Behn	UW-Washington County	West Bend	31
106	Stefan	Rank	UW-Washington County	West Bend	31
49	Jim	Lee	UW-Marathon County	Weston	17
49	Kristie	Thao	UW-Marathon County	Weston	17
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98	Chelsea	Trieber	UW-Stout	MN	29
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Sincerely,

Laurie S. Dies
Special Assistant, Office of the President
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