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2002

### Annual St Cloud State University Student Research Colloquium 2002

St. Cloud State University

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# Annual St. Cloud State University Student Research Colloquium 2002

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# Acknowledgements

The Annual St. Cloud State University Student Research Colloquium 2002 was organized by the Student Research Colloquium 2002 Planning Committee. The members of the committee include:

Ilia Rodriguez, Department of Mass Communication (Co-coordinator)  
Ron Gregg, Department of Theatre, Film Studies and Dance (Co-coordinator)  
Leslie Valdes, Department of Psychology  
Karen Wenz, Center for Information Systems  
Jennifer Kolden, College of Science and Engineering Applied Research  
Center (Proceedings Editor)  
Susan Jensen-Cekalla, Office of Sponsored Programs  
Carolyn Williams, College of Social Sciences  
Don Neu, Department of Chemistry  
Susan Maddux, College of Education  
Flora Calderon-Steck, Department of Ethnic Studies  
Chris Inkster, Learning Resources and Technology Services  
Pamela M. Salela, Learning Resources and Technology Services  
Balsy Kasi, Environmental and Technology Studies  
Richard Rothaus, Office of Sponsored Programs  
Margaret Villanueva, Community Studies  
Wenyu Dou, Marketing and Business Law  
Mary Evenson, Department of Chemistry

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- ❑ Mika Bambery, Cameo Rainaldo and Timothy Sanders from the College of Science and Engineering

# ***And a special thanks to the faculty research sponsors***

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Jeffery Smith

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**Learning Resources and Technology Services****Center for Holocaust and Genocide Education**

Scott Bryce

*College of St. Benedict***Biological Sciences**

Stephen Saupe

**Psychology**

Aubrey Immelman

# Schedule of Events

Time	Event	Location in Atwood Memorial Center
<b>Panel Presentation</b>		
12:00 to 1:00	Research Matters: A Conversation with Successful Professionals on the Applications of Research	Little Theatre, 1 <sup>st</sup> floor
1:00 to 1:30	Reception	Little Theatre Lounge, 1 <sup>st</sup> floor
<b>Oral Presentations</b>		
11:30 to 1:30	Registration and Set Up	Atwood Center Upper Level
	<u>Session Title</u>	
1:30 to 2:50	Session A: Biological Sciences	North Voyageurs, 2 <sup>nd</sup> floor
1:30 to 3:10	Session B: Science and Engineering I	Glacier North, 2 <sup>nd</sup> floor
1:30 to 3:10	Session C: Economics	South Voyageurs, 2 <sup>nd</sup> floor
1:30 to 3:00	Session D: Fine Arts and Humanities I	Lady's Slipper, 2 <sup>nd</sup> floor
1:50 to 3:25	Session E: Fine Arts and Humanities III	Ballroom C, 2 <sup>nd</sup> floor
1:30 to 2:50	Session F: Public Relations	Glacier South, 2 <sup>nd</sup> floor
1:30 to 3:10	Session G: Science and Engineering III	Ballroom A, 2 <sup>nd</sup> floor
1:30 to 3:10	Session I: Social Sciences I	Mississippi, 1 <sup>st</sup> floor
1:30 to 3:00	Session J: Social Sciences II	Ballroom B, 2 <sup>nd</sup> floor
1:30 to 2:30	Session K: Spanish	Watab, 1 <sup>st</sup> floor
<b>Poster Presentations</b>		
11:30 to 3:00	Registration and Set Up	Atwood Center Upper Level
3:00 to 4:30	Session L: All Disciplines	Ballroom, 2 <sup>nd</sup> floor
<b>Undergraduate Research Award (URA) Ceremony</b>		
4:30 to 5:00	College of Science and Engineering URAs	North Voyageurs, 2 <sup>nd</sup> floor
<b>Oral Presentations</b>		
4:30 to 5:00	Registration and Set Up	Atwood Center Upper Level
5:00 to 6:40	Session M: Communication	South Voyageurs, 2 <sup>nd</sup> floor
5:00 to 6:20	Session N: Fine Arts and Humanities II	Lady's Slipper, 2 <sup>nd</sup> floor
5:00 to 6:00	Session O: Gender Issues	Watab, 1 <sup>st</sup> floor
5:00 to 6:20	Session P: Science and Engineering II	Mississippi, 1 <sup>st</sup> floor
5:00 to 6:20	Session Q: Science and Engineering IV	North Voyageurs, 2 <sup>nd</sup> floor
5:00 to 6:00	Session R: Social Sciences III	Ballroom C, 2 <sup>nd</sup> floor

# Program

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Panel Presentation

Little Theatre

12:00-1:00

Opening Remarks by Ruth Meyer, Vice President for Academic Affairs

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## Research Matters:

### A Conversation with Successful Professionals on the Applications of Research

**Jamylle Carter**, Postdoctoral Associate at the University of Minnesota Institute for Mathematics and its Applications.

Dr. Carter has a Ph.D. in Mathematics from the University of California, Los Angeles, and a Master's degree in Mathematics from Harvard University. She has conducted research in methods for total variation-based image restoration, and taught courses in computational sciences, mathematics, and technology and teaching.

**Rebecca Easton**, Residency Coordinator in the Education and Community Partnerships Department at the Guthrie Theater.

She received a certificate from the Marymount Drama Conservatory in London, and a B.A. in Theatre and History from the College of William and Mary in Virginia. Ms. Easton has directed and produced for theaters in Minnesota, Missouri, Texas and Virginia. Her current position involves teaching and developing educational residencies to nurture communities through a focus on individual imagination and spirit.

**Chris Kolbert**, Senior Research Technologist II at the Mayo Foundation.

Mr. Kolbert has a Master's degree in Biology from the University of Wisconsin, and a B.S. in Biological Sciences from St. Cloud State University. As a microbiologist, he has participated in research projects to develop a system that uses DNA sequences to distinguish between different types of pathogenic material, methods for automated detection of resistance to antibiotics, and tests to diagnose diseases.

**Michelle Smith**, Account Executive at AC Nielsen.

Ms. Smith has a B.S. in Marketing from St. Cloud State University and professional experience in sales and management with major corporations in Minneapolis and Chicago. AC Nielsen is a global marketing and communications research firm. At AC Nielsen, she is currently in charge of the General Mills account, working with the cereals and snacks divisions.

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Reception with the panelists

Little Theatre Lounge

1:00-1:30

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<b>Session A</b>	<b>North Voyageurs</b>	<b>Discipline: Biological Sciences</b>
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Session moderated by: Richard Rothaus, Interim Assistant Vice President for Research and Faculty Development

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Time	Presentation Number		
1:30	A1	Schwaller, Shannon	A Morphometric Analysis of Hand Anatomy in Five Genera of New World Primates
1:50	A2	Hinson, Ryan Jansky, Peg Larson, Jeremy	Total Ankle Joint Replacement
2:10	A3	Distelrath, Elizabeth	The Benefits of a Xeriscaped, Prairie Grass Lawn

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<b>Session B</b>	<b>North Glacier</b>	<b>Discipline: Science and Engineering I</b>
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Session moderated by: Diana Burlison, Associate Vice President for Administrative Affairs

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Time	Presentation Number		
1:30	B1	Keleny, Jan	Thermal Spray Coating Processes
1:50	B2	Thampi , Suraj	Study for Development of Polymer Matrix Composite Structures for Roads
2:10	B3	Gehrke, Jason Gobeli, Paul	Heat Treatment Process Experimentation and Design
2:30	B4	Spinar, Michael	A Predictability Study Employing a Non-Divergent Barotropic Vorticity Model
2:50	B5	Scott, Daria	A Warm Surface Air Temperature Singularity in Late Winter Over the North Central United States

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<b>Session C</b>	<b>South Voyageurs</b>	<b>Discipline: Economics</b>
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Session moderated by: Jeff Wagner, Director of Business Services

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Time	Presentation Number		
1:30	C1	McAvoy, Sean	Predicting Bank Cash Demand
1:50	C2	Peterschick, Jennifer	The Efficacy of Substance Abuse Programs on Controlling Crime
2:10	C3	Radtke, Roxanne	Sparks to the Peace Corps
2:30	C4	Gunderson, Eric	Film Advertising
2:50	C5	Betker, Michael	Economic Impact on the Environment

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Session D	Lady's Slipper	Discipline: Fine Arts and Humanities I	
Session moderated by: Lin Holder, Associate Vice President for Academic Affairs			
Time	Presentation Number		
1:30	D1	Sather, Jenny	Theatre Conventions and Actors
1:45	D2	Wendt, Aimee	The Role of Masks in Theatre
2:00	D3	Ghorbani, Shireen	Aristotle and the Tragic Heroine
2:15	D4	Ebb, Eli	Actors and Collaboration in the History of Theatre
2:45	D5	Tidwell, Juli	A Look at Historical Fashion Through <i>Dracula</i>

Session E	Ballroom C	Discipline: Fine Arts and Humanities III	
Session moderated by: J. C. Turner, Associate Dean for the College of Learning Resources and Technology Services			
Time	Presentation Number		
1:50	E1	Solheid, John	<i>The Spiritual Exercises</i> and Jesuit Ministry During the Reformation
2:10	E2	Breitkreutz, Aaron	Induction
2:25	E3	Jesukaitis, Trent Huff, Alyson Bushee, Scott Paggen, Michael Gillitzer, Melissa Frank, Erik S. Dolan, Sean Chand, Sourabh	Language, Communication and Truth

Session F	South Glacier	Discipline: Public Relations	
Session moderated by: Lisa Helmin Foss, Interim Director of Marketing and Communications			
Time	Presentation Number		
1:30	F1	Zuo, Xiangwei	Brand Building Techniques for Small Businesses
1:50	F2	Connolly, Ray	Brewing Success: A Meeting Grounds Public Relations Program
2:10	F3	Opp, Jeff	St. Cloud Hospital Internship
2:30	F4	Henick, Anne Marie	Crisis Management in Public Relations: A Case Study

<b>Session G</b>	<b>Ballroom A</b>	<b>Discipline: Science and Engineering III</b>
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**Session moderated by: Theresa Fisher, President of Faculty Association**

Time	Presentation Number		
1:30	G1	Bishop, Todd	Predicting the NBA Draft
1:50	G2	Merkel, Stacia	Appropriateness of the Paired t-test from Poisson Data
2:10	G3	Nelson, James	Demonstrating the Estimation of Censored Distributions to Students of Statistics
2:30	G4	Noman, Zubair Khan, Mynul Ramadani, Ahmad	Comparison of Algorithms in Solving Minimum Sum of Diameters Clustering Problem
2:50	G5	Kakuk, Michael	Modifications of the Lifetime of the Omega Particle

<b>Session I</b>	<b>Mississippi</b>	<b>Discipline: Social Sciences I</b>
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**Session moderated by: Carolyn Williams, Associate Dean for the College of Social Sciences**

Time	Presentation Number		
1:30	I1	Bennett, Angela Hoogeveen, Laurie	Smoke Out the Smokers?
1:50	I2	Peterson, Tesha Rodriguez, Marisol Lundy, Dave Johnson, Mina	Jesse Ventura: Time Series Examination of His Role Performance as Governor of Minnesota
2:10	I3	Jabs, Angela Kapoor, Sonu Mahlum, Anne	Minnesota Lottery
2:30	I4	Chow-Bing, Ngeow	Political Participation in Minnesota
2:50	I5	Stuart, Susan	Ritualistic Racing: Using Magic at Canterbury Park

Session J		Ballroom B		Discipline: Social Sciences II	
Session moderated by: Annette Day, Director of Graduate Admissions					
Time		Presentation Number			
1:30	J1	Roe, Christina Awe, Sydney Bezdicek, Emily Frohman, Niki Lien, Shawna Magel, Audra Waisley, Kristen	Social Identity as It is Shaped by Group Membership		

Session K		Watab	Discipline: Spanish
Session moderated by: Lisa Splittgerber, Assistant Professor of Spanish			
All presentations will be in Spanish			
Time	Presentation Number		
1:30	K1	Lin, I-Chun	La cortesía en tres culturas: La china, la americana y la hispana ( <i>Courtesy in Three Cultures: Chinese, American and Hispanic</i> )
1:50	K2	Gallien, Kathryn	La Relación Madre-hija Según Esther Tusquets y Pedro Almodóvar ( <i>The Mother-Daughter Relationship According to Esther Tusquets and Pedro Almodóvar</i> )
2:10	K3	Black, Kyle	Ernesto Che Guevara

<b>Session L</b>	<b>Ballroom</b>	<b>Discipline: All Disciplines (Poster Presentations)</b>	
<b>Time</b>	<b>Presentation Number</b>		
3:00	L01	Weidner, Wendy Robinson, Kari Moone, Rajean Houser, Anne	Attitudes Toward War on Terrorism
	L02	Ward, Jeffrey	Shiny: A Unix-Based Program for Astronomical Image Acquisition
	L03	Gabrawy, Mariann	Prey Preferences of Microvelia buenoi (Hemiptera: Veliidae)
	L04	Whipple, Scott Krueger, Noel Evans, Addie Sakry, Christy	Effects of Light Intensity on the Growth of Rhamnus Cathartica
	L05	Dyrdahl, Matthew	Housing Affordability
	L06	Tedrow, O'Niell	Bioassay Protocols for Assessing Pharmaceutical Contamination in the Food Web
	L07	Krueger, Noel	Population Dynamics of an Endemic Diatom in the Laurentian Great Lakes
	L08	Ihla, Conrad Doss, Jeff Olson, Mark	Automated Vehicle Parking System
	L09	McNair, Megan Oien, Josh	The Effects of Ribose Ingestion on Type 2 Diabetics
	L10	Frodl, Brett J.	Phosphorous-31 Nuclear Magnetic Resonance Spectroscopy Studies of the Reaction Catalyzed by Phosphoglycerate Kinase
	L11	Kaufeld, Wendilyn	Determining the Relationship between Relative Humidity and Aerosol Sulfate: A Field Study
	L12	Green, Amy	The PAI as a Measure of Substance Abuse Among Medical Patients
	L13	Steffenson, Cade	Application of a Fish Index of Biotic Integrity to Cold Water Streams of Central Minnesota
	L14	Dickhudt, Anne	Seeing the Tree for the Forest: Difficulties in Selective Attention
	L15	Nkhata, Katai	Studies Using the Human Leukemic Cell Line HL-60

<b>Session L</b>	<b>Ballroom</b>	<b>Discipline: All Disciplines (Poster Presentations)</b>	
<b>Time</b>	<b>Presentation Number</b>		
3:00	L16	Kane, Dale Runadive, Sunita Gonnion, Scott	The Invasion of Species
	L17	Durst, Alesha Blattenbauer, Tracy Zimpel, Renae Gunderson, Katie Paxton, Jacqi Scott, Colet Simms, Allison	Relationships Between Job Satisfaction, Stress, and Burnout for Speech-Language
	L18	Yap, Yoke	Influence of Mood and Verbalization on Consumer Taste Preferences
	L19	Tan, Mun Sie	A Bayesian Approach to Forecasting Enrollment at SCSU
	L20	Kawecki, Michelle Crandall, Peter Richey, Eric Reed, Sarah Strom, Corey	Comet Observations Made From the SCSU Observatory
	L21	Morrison, Darla	Examination of Cell Surface Proteins on White Blood Cells
	L22	Vollbrecht, Matthew	Why use Macroinvertebrate Bioassessment to Measure Water Quality
	L23	Schweiger, Paul	Reproductive Health of Fishes Exposed to Water- Borne Xenoestrogens
	L24	Lane, Jesse	Synthesis of 2-Butoxyethanal by Swern Oxidation
	L25	Whittlinger, Amanda	The Water Chemistry of Pleasant Lake (MN) and its Affect on Lake Biota
	L26	Zellmer, Jonathan	Aqueous Two-Phase Microextraction
	L27	Dillman, Krista	Research on Chronic Inebriate Program
	L28	Berg, Anne	Speech Characteristics that Contribute to the Diagnosis of Developmental Apraxia
	L29	Liles, Justin	Analysis of Snowflake Types and the Atmospheric Conditions that Produce Them
	L30	Dechaine, Jennifer	The Effect of Vanadium Complexes on Class-2 Aldehyde Dehydrogenase

Session L	Ballroom	Discipline: All Disciplines (Poster Presentations)	
Time	Presentation Number		
3:00	L32	Salyer, Faye Streefland, Lisa Matros, Nicole	Gifted Women's Attitudes Towards the Family/Career Conflict
	L33	Manthie, Jessica	A Personality Profile of Michael Collins and Eamonn deValera
	L34	Ervasti, Kat Geppert, Katie St. Clair, Michelle	How Gender Influences the Interpretation of Facial Expressions
	L35	Riska, Karen	Traditional Long Underwear versus Electrostatic Long Underwear
	L36	Gilpin, Josh	Cloning of a Truncated Class-3 Aldehyde Dehydrogenase
	L37	Fritz, Daniel	Photochemistry of Phenyl Isothiocyanate
	L38	Scanlan, Michelle	Inhibition/Activation of Human ALDH1A1 by Vanadium Complexes
	L39	Zhao, Shukui	Study of Sino-atrial Node by Ultrasound Imaging
	L40	Vrieze, Steve	The Effects of Increasing Daily Lifestyle Activity
	L41	Scott, Daria	Aspects of a February Warm Temperature Singularity
	L42	Devonish, Julia	Body Image Perceptions Among Black and White Female College Students
	L43	Flicek, Theresa Otsuki, Akira Rao, Nishta Weckwerth, Leon	Detoxification of 2-Butoxyethanol by Human ALDH1A1 and ALDH2
	L44	Wojchowski, Dylan	Optimization of Micro-Satellite Primers for Paternal Testing of Fathead Minnows
	L45	Hecker, Beth	Sanction Assigned to Perpetrators of Munchausen Syndrome by Proxy
	L46	Collins, Michael	Predictive Clinical Utility of the Modified Digit Symbol Test
	L47	Morris, Garrett	Stabilization Stress Induced Expression of iNOS
	L48	Ballweber, Katie	Exploring Factors that Enhance Creativity
	L49	Reeve, Bari	Cadmium-Induced Expression of Class-3 Aldehyde Dehydrogenase

<b>Session L</b>	<b>Ballroom</b>	<b>Discipline: All Disciplines (Poster Presentations)</b>	
<b>Time</b>	<b>Presentation Number</b>		
3:00	L50	Lovold, Mandy Williams, Diana	Detoxification of 2-Butoxyethanol by Class-3 Aldehyde Dehydrogenase
	L51	Wendt, Patricia	Breast Cancer Resistance to UCN-01
	L52	Heinks, Daniel Sanguino, Jorge	Wireless Communications Simulation Using IEEE-802.11b
	L53	Tan, Wei Dhital, Ashish	Bluetooth-Wireless Technology
	L54	Gurung, Nir Zhang, Wei	Smart Thermostat
	L55	Roehler, Matt Sprister, Dane Rudiger, Megan	LEVICS-Light Emitting Vehicle Identification Communications System
	L56	Cornett, Alan Heying, Cindi Osen, Kevin	Portable Language Translator
	L57	Ahmed, Mirja J. Chowdhury, Mohammed Materu, Arnold	Wireless Intelligent Smoke Detector Networking
	L58	Holt, Laura Kelley, Sam	Bobsled with Calculus
	L59	Blount, Theron	Charmonium Dissociation in Hadronic Matter
	L60	Peters, Judith	Effects of Broad Hadron Distribution on Low Mass Dilepton Signals
	L61	Ebnet, Heather	Diversity Issues in the Elementary Classroom
	L62	Sanguino, Jorge	CDMA2000 and Its Implementation Using VHDL/FPGA
	L63	Boerner, Debi Rosenberg, Julie Weber, Steve	Wireless Energy Management System
	L64	Kilian, Tony Chowdhury, Mizanur Carlson, Jacob	Mobile GPS Mapper
	L65	Lee, Peter Lieng, Shee Jack Yap, Pak Ching	Smart Weighing Machine

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**Undergraduate      North Voyageurs      4:30-5:00**  
**Research Award (URA) Ceremony: College of Science and Engineering URAs**

**Awards presented by: A. I. Musah, Dean for the College of Science and Engineering**

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<b>Student Name(s) / Title of Research Project</b>	<b>Faculty Research Sponsor(s) Department</b>
Jennifer Dechaine / "The Effect of Vanadium Complexes on Human Class-2 Aldehyde Dehydrogenase"	Mohammad Mahroof-Tahir and Lakshmaiah Sreerama Chemistry
Joshua Gilpin / "Cloning of Truncated ALDH-3A1"	Lakshmaiah Sreerama Chemistry
Michael Kakuk / "Investigating the Affect of Increased Temperature and/or Particle Densities on the Lifetimes of Certain Subatomic Particles"	Kevin Haglin Physics, Astronomy, and Engineering Science
Wendilyn Kaufeld / "Determining the Relationship between Relative Humidity and Aerosol Sulfate: A Field Study"	Gregory Nastrom Earth and Atmospheric Sciences
Tom LaBounty and Shawn Roering / "Designing and Implementing a New Cryptosystem"	Stephen Walk Mathematics
Justin Liles / "An Analysis of Snowflake Structures Within a Cloud"	Tony Hansen Earth and Atmospheric Sciences
Zubair Noman, Mynul Khan, Ahmad Ramadani / "Comparison of Algorithms in Solving Minimum Sum of Diameters Clustering Problem"	Ramnath Sarnath Computer Science
Bari Reeve / "Cadmium-Induced Expression of ALDH3A1"	Lakshmaiah Sreerama Chemistry
Michelle Scanlan / "Inhibition/Activation of Human Class-1 Aldehyde Dehydrogenase by Vanadium and its Complexes"	Mohammad Mahroof-Tahir and Lakshmaiah Sreerama Chemistry
Daria Scott / "A Warm Surface Air Temperature Singularity in Late Winter Over the North Central United States"	Tony Hansen Earth and Atmospheric Sciences
Alicia Spychala / "Theoretical Investigation of Sulfinyl Radical Reactions"	Daniel Gregory Chemistry
Jeffrey Ward / "Shiny: A Unix-Based Program for Astronomical Image Acquisition"	David Pinnick Physics, Astronomy, and Engineering Science
Jonathan Zellmer / "Aqueous Two-Phase Microextraction"	Michael Jeannot Chemistry

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Award recipients will receive a monetary stipend of \$208.00 (per research project), funding for research supplies and expenses and formal recognition by the College of Science and Engineering.

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Session M	South Voyageurs		Discipline: Communication
Session moderated by: Rodney Dobey, Interim Associate Dean for the College of Education			
Time	Presentation Number		
5:00	M1	Munajat, Rama	Effect of Explicit Grammar Instruction on Second Language Learners' Accuracy
5:20	M2 (Has been moved to Session A at 2:30 pm)	Smith, Jason	Connector Assembly Equipment Design
5:40	M3	Clements, Janet	Family Literacy Programs: Creating Success for Adults and Children
6:00	M4	Russell, Sandra	Pidginization/Creolization Hypothesis
6:20	M5	Kudo, Mari McCann, Shanna	Communication Strategies in Second Language Speakers

Session N	Lady's Slipper		Discipline: Fine Arts and Humanities II
Session moderated by: Rex Veeder, Assistant to the President for Special Projects			
Time	Presentation Number		
5:00	N1	Myers, Kevin	Experimental Film
5:20	N2	Haake, Erin	Vaughan Williams, <i>Oboe Concerto</i>
5:40	N3	Anthony, Liz	<i>Citizen's Arrest</i>
6:00	N4	Kampa, Wade	550 Piece Visual

Session O	Watab	Discipline: Gender Issues	
Session moderated by: Adelaide Habstritt Turkowski, Director of Career Services			
Time	Presentation Number		
5:00	O1	Christopherson, Bettina	Gender Equity Issues in Computer Courses at Wayzata High School
5:20	O2	Garn, Barbara	Community-Building in Women's Summer League Ice Hockey
5:40	O3	Bauer, Michelle	Barbie Isn't Real, I Am

<b>Session P</b>	<b>Mississippi</b>	<b>Discipline: Science and Engineering II</b>
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Session moderated by: Dale Williams, Associate Dean for the College of Science and Engineering

Time	Presentation Number		
5:00	P1	Kaufeld, Wendilyn	Determining the Relationship between Relative Humidity and Aerosol Sulfate: A Field Study
5:20	P2	Spychala, Alicia	Theoretical Investigation of Sulfinyl Radicals
5:40	P3	Rafferty, Jake	Photochemistry of Benzylisothiocyanate and Benzylthiocyanate
6:00	P4	Haukos, Chris	The Effects of 12 Weeks of Cycling on Aerobic Capacity and Body Composition

<b>Session Q</b>	<b>North Voyageurs</b>	<b>Discipline: Science and Engineering IV</b>
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Session moderated by: Jennifer Kolden, Administrative Assistant for the College of Science and Engineering

Time	Presentation Number		
5:00	Q1	LaBounty, Tom Roering, Shawn	Applications of Boolean Satisfiability for Cryptography
5:20	Q2	McGowan, Jeremy	Safety in Manufacturing
5:40	Q3	Prom, Brian Schlangen, Adam	Ultrasonic Cleaning Process
6:00	Q4	Decker, Jeremy Josephson, Keith	Innovex, Inc., Supervisory Control and Data Acquisition (SCADA) Project

<b>Session R</b>	<b>Ballroom C</b>	<b>Discipline: Social Sciences III</b>
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Session moderated by: Larry Chambers, Director of Human Resources

Time	Presentation Number		
5:00	R1	Kraipowich, Jennifer	Socially Responsible Jobs
5:20	R2	Stiedl, Brian	Hate Groups during the 20th Century
5:40	R3	Peterschick, Jennifer	Compliance with Corporate Codes of Conduct: The Case of Nestlé

Title and Abstract	Presentation ID	Time	Room
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### **A Morphometric Analysis of Hand Anatomy in Five Genera of New World Primates**

A1

1:30

North  
Voyagers

A morphometric analysis compared hand anatomy in three genera of the sub-family Atelinae and two genera of the sub-family Cebinae. The genera *Alouatta* (species *A. palliata* and *A. seniculus*), *Lagothrix* (*L. lagotricha*) and *Ateles* (*Ateles* spp.) were compared with an out-group consisting of two genera of the sub-family Cebinae: *Cebus* (*C. albifrons* and *C. capucinus*) and *Saimiri* (*S. sciureus*). Comparison of the specialized hand anatomy of the Atelinae with an out-group demonstrating less derived hand morphology tested the hypothesis that similar anatomical change in hand anatomy, such as finger length and thumb reduction, occurs in the same manner in closely related taxa. The results from this study demonstrated that anatomical changes in proportions and growth allometry occur very differently in *Ateles* relative to the out-group and the other Atelinae genera. *Ateles* showed significantly longer metacarpal lengths relative to phalangeal lengths than the other genera. Also different in *Ateles* was the reduction of thumb length and robustness through losses of the phalanges as well as bony material in mid-shaft height and diameter. *Ateles* demonstrated significantly different proportions and growth patterns of the metacarpal length relative to phalangeal lengths of *Alouatta* and *Lagothrix*. A preliminary comparison of adults with a small sample of juveniles demonstrated that the growth allometry in the long bones of the hand of *Ateles* differed significantly from the other Atelinae. These results suggested that the genetic processes underlying the growth patterns have undergone significant changes among closely related species of the Atelinae sub-family.

#### **Student(s)**

Schwaller, Shannon

#### **Sponsor(s)**

Gold, Debra

### **Total Ankle Joint Replacement**

A2

1:50

North  
Voyagers

Medical implants to replace various joints in the human body are becoming common surgeries. However, implants for the tibiotalar (ankle) joint have not had the success rate of the common hip and knee replacement surgeries. This lack of success has been due to: restriction of joint mobility, loss of desired stability, bearing subluxation (dislocation of bearing component), wear of articulating surfaces, loosening of fixated components from bone, and interruption of the blood supply to the bones of the joint, particularly the talus. We have designed an implant that addresses these issues using a four bar linkage model to simulate movement in the normal joint. This resulted in a three-component implant with convex tibia and talus surfaces, and a double concave ultra-high-molecular-weight polyethylene bearing between. We have chosen a biocompatible titanium alloy known as TMZF for the implant material that will give the best combination of strength and flexibility along with improved wear resistance. The bone/implant interface surfaces will be coated with a porous tantalum biomaterial that has desirable characteristics for bone ingrowth to supply the needed strength for fixation. The implant was kept to a nominal thickness so bone resection (cutting and removal) would be minimal.

#### **Student(s)**

Hinson, Ryan

Jansky, Peg

Larson, Jeremy

#### **Sponsor(s)**

Miller, Ken

<b>Title and Abstract</b>	<b>Presentation ID</b>	<b>Time</b>	<b>Room</b>
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<b>The Benefits of a Xeriscaped, Prairie Grass Lawn</b>	A3	2:10	North Voyageurs
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Throughout this semester I have been studying Xeriscaping and the benefits of using prairie grasses versus typical lawn grasses. Xeric is the title for a particular type of landscaping that conserves water and uses very few pesticides and fertilizers. The key to this landscaping is its friendliness to the environment and its low maintenance requirements. My hypothesis was that prairie grasses would be a better choice for a lawn cover than the usual Kentucky Blue grass. There are two reasons for this. First, prairie grasses are a native plant to this area of Minnesota so naturally they will thrive in this environment. Second, prairie grasses are a low maintenance plant due to the fact that they have a minimal demand for water, they do not require fertilizers, and they do not need to be mowed (Bormann). The main objective of this project was to develop a landscape plan that is environmentally friendly, requires very little maintenance, and can be implemented in place of the typical American lawn. Each year Americans spend much unwanted time and money on the up-keep of their lawns; a practice that is overall harmful to the environment. My new landscape plan will decrease the costs of lawns in time, money, and environmental damage.

Bormann, F. Herbert. Redesigning the American Lawn. Yale University Press: London, 1993.

**Student(s)**

Distelrath, Elizabeth

**Sponsor(s)**

Saupe, Stephen

<b>Thermal Spray Coating Processes</b>	B1	1:30	North Glacier
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Thermal spray deposition involves coating a substrate with molten or semimolten particles. These particles can be powdered ceramics, metals or composite materials chosen for their ability to provide corrosion resistance, wearability, improve appearances, and as non-toxic alternatives to traditional spray coating methods. This report will look at the various coating processes and associated properties, such as porosity, thickness, durability, and applications. There are four basic application processes: Combustion, Arc, HVOF (High Velocity Oxygen Fuel), and Plasma thermal spray methods. Each of these will be individually and briefly discussed, with emphasis on the advantages and disadvantages of each. Discussion will also include benefits of Thermal Coating Deposition. Particle requirements and properties will be explored, from historic applications and materials to the more common man-made compositions used today. Specific areas to be covered include particle purity, particle size and reactivity, and porosity.

**Student(s)**

Keleny, Jan

**Sponsor(s)**

Kasi, Balsy

<b>Title and Abstract</b>	<b>Presentation ID</b>	<b>Time</b>	<b>Room</b>
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<b>Study for Development of Polymer Matrix Composite Structures for Roads</b>	<b>B2</b>	<b>1:50</b>	<b>North Glacier</b>
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The temperate zones of the United States have had a lot of vehicle accidents on roads due to the formation of black ice over the surface of roads. Black ice forms when rain falls on a road surface that is colder than the freezing point. The tires of vehicles lose friction on these roads due to the reduction of the wheel slip on the surface. My research project will provide a solution to this problem by proposing structural alteration of roads and addition of a buffer layer, which would act as an absorbent, desiccant and thermal barrier. The absorbent quality of the buffer will enable water retention in its porous cavities while excess snow is removed by snowplows. The thermal barrier would maximize insulation utilization to melt ice, and at the same time, not allow geo-thermal energy to change the phase of the snow when sunlight is absent or insufficient. The buffer layer will be a polymer matrix composite structure with the above-mentioned properties coupled with structural fatigue and failure reduction. The road will be divided into three layers. The first layer being a mixture of chipped tires, asphalt and tar. Asphalt and chipped tires form discontinuous fibers in a tar matrix. The second layer (buffer layer) will have a polymer matrix with discontinuous fiber in the form of air pockets. The third layer would give the structural stability that the road needs and it would be a composite of concrete and asphalt. Finally, I shall theoretically explain, with a cost benefit analysis and method of testing, why a polymer matrix composite, three-tiered road would provide a solution to the reduction of wheel slip leading to longer lasting economical roads.

<b>Student(s)</b>	<b>Sponsor(s)</b>
Thampi, Suraj	Kasi, Balsy

<b>Heat Treatment Process Experimentation and Design</b>	<b>B3</b>	<b>2:10</b>	<b>North Glacier</b>
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Heat-treating of steels is an essential processing component for a wide variety of companies. A large amount of different techniques are utilized in industry to achieve desired steel properties while optimizing cycle times. This project deals with the austempering of lawn mower blades, which is a key factor in the success of the product. This process allows the blade to reach a critical temperature where the steel is formed to austenite. After that, the blade is cooled to a different critical temperature and eventually the material is transformed to bainite, which is excellent for the type of mechanical loading that lawn mower blades are subjected to. The project investigates the optimal temperatures and times of the austempering process. This is valuable because proper mechanical properties of the blade are achieved while minimizing the cycle time. Because of the large amounts of energy required to operate the austempering furnaces, an optimal cycle time will maximize profit. However, a balance must exist between this cycle time and the material quality. If the material fails to meet a customer's specification, it will need to be re-austempered, doubling the cycle time. To achieve the optimal process, data acquisition is performed on both the blades and furnaces to measure the temperature versus time. In addition, numerous steel samples are analyzed to determine the major process variables that drive the mechanical properties.

<b>Student(s)</b>	<b>Sponsor(s)</b>
Gehrke, Jason Gobeli, Paul	Yu, Warren

Title and Abstract	Presentation ID	Time	Room
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### **A Predictability Study Employing a Non-Divergent Barotropic Vorticity Model**

B4

2:30

North Glacier

A predictability study was conducted employing a non-divergent barotropic vorticity model. This model is based upon a simplification of Newton's Second Law of Motion. It simulates the atmosphere as a one-layered, non-divergent fluid with no friction, moisture, or diabatic heating. Under these conditions, the absolute vorticity, which measures microscopic rotation, is conserved. The relatively simple nature of the model lends itself readily to a predictability study for a number of reasons. First of all, the model is relatively easy to create. Second, it captures the essential non-linear physics that lead to the divergence of the model fields from those of the actual atmosphere with time. Third, the variance in the final state of the model runs can be traced to one factor; the differences in resolving the vorticity field at the initial time. The barotropic model was initialized with upper air observations collected across North America on 00 UTC 6 December 1996. An objective analysis was performed to transform these irregularly spaced observations to an evenly spaced grid. This data was ingested by the model, which was integrated in time to obtain a forecasted data field. This control field was then compared with other data fields in which observations had been removed, thus altering the initial state of the model. The results demonstrate that some observations carry more weight than others in determining a model forecast. This result has many applications to operational meteorology. The limited observations over regions like the ocean could be deployed to better resolve features that have a high degree of impact on the model forecast. This in turn, would improve forecast skill.

#### **Student(s)**

Spinar, Michael

#### **Sponsor(s)**

Hansen, Tony

### **A Warm Surface Air Temperature Singularity in Late Winter Over the North Central United States**

B5

2:50

North Glacier

Recent interest in trends in climatology due to increased global mean temperatures has provided incentive and accessible data for the analysis of regional climate anomalies. A particular time of interest is around the transition of seasons from winter to spring. This study focuses on a February anomaly referred to as the "Termination of Hard Winter." In this study, surface air temperatures are examined for evidence of this singularity in the North Central United States. The singularity shows up as an abrupt temperature increase, centered in northern Minnesota, which occurs around February 22 in the 24 year period 1976-1999, while occurring about a week earlier in the previous 24 year period (1952-1975). Spatial analysis suggests a tendency for changes in synoptic-scale phenomena during the 10 calendar days from February 15-24. These results show an interesting change in the temperature behavior of the North Central United States over the last half century.

#### **Student(s)**

Scott, Daria

#### **Sponsor(s)**

Hansen, Tony

<b>Title and Abstract</b>	<b>Presentation ID</b>	<b>Time</b>	<b>Room</b>
<b>Predicting Bank Cash Demand</b>  <p>This paper presents a model of cash demand at a local bank branch. While there has been quite a bit of work done on predicting society's demand for money, there is relatively little that has been done to test and replicate that work on a more micro level. While local banks use a variety of methods to estimate their cash order amounts, of the ones surveyed, none use any type of statistical modeling. Models used include "eyeballing" what is left in the vault and placing an order from that to looking at the cash ordered last year at that time and replicating that order. This paper proposes that there are logical and repeating patterns and events that affect cash demand of banks. The variables that are believed to have influence over cash demand will be the available short-term interest rate reflecting the cost of holding cash, month and/or holiday dummy variables, and unemployment data, as a proxy to the strength of the local economy.</p>	C1	1:30	South Voyageurs
<b>Student(s)</b> McAvoy, Sean	<b>Sponsor(s)</b> Grossman, Philip		
<b>The Efficacy of Substance Abuse Programs on Controlling Crime</b>  <p>The war on drugs has become a large enterprise due in part to the political arena suggesting that the social cost associated with drug and alcohol abuse is much greater than what is spent on federally funded treatment programs. The social costs include loss of productivity, increased health care costs, and increases in crime. Prior studies have suggested that there has been no significant change in major crime after completion of an alcohol and drug treatment program. This analysis will test whether there is an inverse relationship between major crime and alcohol and drug treatment in the 87 counties in the State of Minnesota. The null hypothesis for this analysis: alcohol and drug treatment programs are effective in reducing social costs to a given society by reducing major crime. This analysis will inform policy discussion by determining whether politically motivated programs such as federally funded alcohol and drug treatment programs are effective. If the regression analysis suggests that these programs are ineffective in reducing major crime, perhaps the community would be best served by eliminating such programs and spending taxpayer dollars elsewhere.</p>	C2	1:50	South Voyageurs
<b>Student(s)</b> Peterschick, Jennifer	<b>Sponsor(s)</b> Grossman, Philip		
<b>Sparks to the Peace Corps</b>  <p>The share of college graduates volunteering to enter the Peace Corps fluctuates from year to year. Due to the current increase in domestic altruism and the tight job market, the Peace Corps is experiencing an increase in applications. This paper presents an empirical model of Peace Corps volunteering over time. The model is estimated using time series regression techniques. Contributing factors to the number of Peace Corps applicants are the overall strength of the economy/job market, the Peace Corps budget, volunteers' compensation, the amount of political unrest of Peace Corps inhabited areas, the level of domestic altruism, and the number of available applicants.</p>	C3	2:10	South Voyageurs
<b>Student(s)</b> Radtke, Roxanne	<b>Sponsor(s)</b> Grossman, Philip		

<b>Title and Abstract</b>	<b>Presentation ID</b>	<b>Time</b>	<b>Room</b>
<b>Film Advertising</b>  <p>As the entertainment industry expands into a multibillion dollar a year industry (Variety), each motion picture is commanding a larger budget thus creating a greater risk exposure for the production companies. Previous studies have produced models that will estimate the total revenue a film will make after its release date. One study attempted to model and produce a prerelease evaluation taking into account the behavioral state of consumers with regards to the unreleased movie. However, there have not been any previous studies of opening weekend box office revenue. This paper models opening weekend box office totals factoring in the effect of big named stars and advertising budgets, the pre-opening reviews it receives, the rating that the movie is assigned, and the number of screens that the movie is showing on.</p> <p><b>Student(s)</b> Gunderson, Eric</p> <p><b>Sponsor(s)</b> Grossman, Philip</p>	C4	2:30	South Voyageurs
<b>Economic Impact on the Environment</b>  <p>This paper examines the factors determining 1997 Carbon Dioxide (CO<sub>2</sub>) emissions per capita for a sample of 78 countries. The independent variables in this model include agriculture, industry, services, private consumption, and government consumption each as a percent of 1997 gross domestic product (GDP). This was done to analyze the possible effects that a country's macroeconomic structure may have on CO<sub>2</sub> emissions. Also this allows for some determination as to whether or not a centralized government with relatively high consumption is able to reduce CO<sub>2</sub> emissions as a result of said consumption. Other variables included in the model are GDP per capita, percent of the population living in urban areas and population density. Previous research in this area found the relationship between GDP per capita and CO<sub>2</sub> emissions to be curvilinear. The percent of the population in urban areas and population density variables indicates whether or not people living closely to one another and the problems associated with such living significantly influences CO<sub>2</sub> emissions.</p> <p><b>Student(s)</b> Betker, Michael</p> <p><b>Sponsor(s)</b> Grossman, Philip</p>	C5	2:50	South Voyageurs
<b>Theatre Conventions and Actors</b>  <p>During fall semester of 2001 theatre history and dramatic literature classes made a joint assignment of a series of five papers with a narrow focus. Actors and theatre conventions was selected as a topic and the papers started with the beginnings of Greek theatre and continued until the renaissances that occurred all throughout Europe. These papers dealt with different theatre conventions of the periods and how they affected the actors and roles portrayed by actors. The papers were set up on Netscape Composer and/or Adobe Page Mill, two different web site creators, and posted on WebCT for viewing and grading.</p> <p><b>Student(s)</b> Sather, Jenny</p> <p><b>Sponsor(s)</b> Wentworth, Brenda</p>	D1	1:30	Lady's Slipper

Title and Abstract	Presentation ID	Time	Room
<p><b>The Role of Masks in Theatre</b></p> <p>This project's objective was to research mask usage in the theatre for multiple eras. The assignment was to make an assertion and create a web page with information supporting it. The assertion was that masks were used throughout theatre history for various purposes. The project was developed in the Fall 2001 semester, in the co-requisite courses of Theatre History I and Drama I. This research covered the use of theatrical masks from Greek Tragedies to Japanese Noh Theatre to the Italian Commedia dell'Arte. This course was based on using this university's WebCT server. In addition to the research on masks, this project required applying past knowledge and the ability to learn new methods of using technology. Also, it was required to think critically and in depth about a particular element of theatre.</p> <p><b>Student(s)</b> Wendt, Aimee</p> <p><b>Sponsor(s)</b> Wentworth, Brenda</p>	D2	1:45	Lady's Slipper
<p><b>Aristotle and the Tragic Heroine</b></p> <p>Aristotle's observations of drama are the foundations of theatre theory. How did this man's observations about the ideal tragic hero apply to female characters or could it be applied to female characters at all? Female characters were analyzed from different plays and periods of theatre history. Was the female character given the opportunity over the course of the play to evoke both fear and pity from the audience? With the Poetics as guide many great works were examined, spanning from Medea to Hamlet. It was discovered that very few women actually fit Aristotle's idea of the ideal tragic hero. The research was placed on a web page using links and graphics as well as print media to argue that few women characters have been able to evoke both pity and fear from audience members.</p> <p><b>Student(s)</b> Ghorbani, Shireen</p> <p><b>Sponsor(s)</b> Wentworth, Brenda</p>	D3	2:00	Lady's Slipper
<p><b>Actors and Collaboration in the History of Theatre</b></p> <p>This research followed the methods in which actors provided input into theatrical performances and how this input changed over time. To research this subject many different materials were utilized as sources: documents on the internet, reference materials, works published by scholars, and videos. The research from these varying resources was then presented in a web-based form, including links to exterior internet sources, tables, graphics, and other students' work. Although this research can be presented as a series of stand-alone articles, it is more beneficial to view it in its context. This allows the reader to see other students' papers as links in the report and to better understand the environments the actors worked in.</p> <p><b>Student(s)</b> Ebb, Eli</p> <p><b>Sponsor(s)</b> Wentworth, Brenda</p>	D4	2:15	Lady's Slipper
<p><b>A Look at Historical Fashion Through <i>Dracula</i></b></p> <p>I intend to discuss the process of designing costumes for the show <i>Dracula</i>. I plan to explain the basic timeline-from start to finish-of what was needed to achieve the final results. Some of the topics I will include will be: analysis of the script, researching the fashion of the time, forming ideas, developing renderings, renting costumes, building costumes, fittings, alterations, difficulties raised, and the final results. I will also relate this experience to past costuming experiences, and how it will influence my future work on costumes.</p> <p><b>Student(s)</b> Tidwell, Juli</p> <p><b>Sponsor(s)</b> Conrad, Donna</p>	D5	2:45	Lady's Slipper

Title and Abstract	Presentation ID	Time	Room
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***The Spiritual Exercises and Jesuit Ministry During the Reformation***

E1

1:50

Ballroom C

The popular perception of the Society of Jesus in Reformation historiography is that the Jesuits were “counter-reformers” battling against the Protestant reformers. They are commonly viewed as controversialists, intellectuals, and schoolmasters, dedicated to the service of the pope as his zealous, militaristic soldiers fighting to re-Catholicize Europe. Indeed some Jesuits were very controversial, they all were intellectuals, and many became schoolmasters later in the sixteenth century when the Jesuits formed seminary schools all across Europe. The Jesuits were not active in the “counter-reform” efforts, however, until they swore their obedience to the papacy, which did not occur until nearly a decade after St. Ignatius of Loyola and his “companions” (the first Jesuits) began their ministry. It was a ministry primarily concerned with directing people through the four-week spiritual program designed by Ignatius in his Spiritual Exercises. The ministry of Ignatius began before he became an ordained priest. He taught people the fundamentals of the Catholic faith and simple prayers such as Our Father and Hail Mary. The Spiritual Exercises directed individuals through the three stages of spiritual growth - purgation, illumination, and union - as encountered in the Spiritual Exercises. These were important aspects of the Spiritual Exercises because they stressed God’s active participation in the development of the individual’s spirituality. The first Jesuits were - as they saw themselves - ministers in the care of souls, not a militant religious order working for the pope in the counter-reformation. In other words, they were working for the spiritual renewal of Europe.

**Student(s)**

Solheid, John

**Sponsor(s)**

Kim, Marie

**Induction**

E2

2:10

Ballroom C

An inductive argument is a form of argument which is commonly used everyday. It's a form of argument which moves from particular claims to a generalized claim. For example, the first swan I see is white. The second swan I see is white. The third swan I see is white. So, all swans are white. Induction is used to make reasonable predictions about the future. But are those predictions likely to be true? David Hume has a famous skeptical argument which asserts that they are not. This argument has become known as “The Problem of Induction.” My presentation will examine induction and Hume's argument against it.

**Student(s)**

Breitkreutz, Aaron

**Sponsor(s)**

Nuccetelli, Susana

<b>Title and Abstract</b>	<b>Presentation ID</b>	<b>Time</b>	<b>Room</b>
<b>Language, Communication and Truth</b> <p>We shall discuss two opposite views regarding the meaning of singular terms. According to a naive theory, simple components of sentences stand for things. This theory was modified by John Stuart Mill in his <i>System of Logic</i>, where he proposed a two-level semantics from general terms and singular ones, with the exception of proper names. According to Mill, the latter contribute just the denoted object to the proposition in which they occur. Gottlob Frege and Bertrand Russell famously challenged that view, introducing a descriptive account of proper names that became mainstream until the mid 1970s. We shall present the arguments crucial to this debate and evaluate the strength of the positions at stake.</p> <p><b>Student(s)</b>  Bushee, Scott  Chand, Sourabh  Dolan, Sean  Frank, Erik S.  Gillitzer, Melissa  Huff, Alyson  Jesukaitis, Trent  Paggen, Michael</p> <p><b>Sponsor(s)</b>  Nuccetelli, Susana</p>	E3	2:25	Ballroom C
<b>Brand Building Techniques for Small Businesses</b> <p>A highly competitive market demands that businesses sell their products effectively to customers. Using all the financial and technological resources, large companies not only try to keep their existing market shares, but also try to grab new customers. Competing with the giants, small start-ups need to build their brand names effectively. The importance of building brand name is to secure existing market shares, maintain business relationships with stakeholders and look for growth potentials. This research is going to link small businesses' characteristics with brand building. Small businesses face many obstacles to survive. However, building brand names is an effective tool of small businesses to compete with large ones and strong brand names are essential to small business survival and growth. This research will scrutinize the importance of brand building for small businesses. This research will concentrate on small businesses' brand building process. Several interviews with small business owners will be conducted. The purpose of these interviews is to bring real life examples into this project. Somehow, small businesses' brand building is a new topic in the entrepreneurial area. The findings from this study will be useful for the current and future small business owners.</p> <p><b>Student(s)</b>  Zuo, Xiangwei</p> <p><b>Sponsor(s)</b>  Kasi, Balsy</p>	F1	1:30	South Glacier

<b>Title and Abstract</b>	<b>Presentation ID</b>	<b>Time</b>	<b>Room</b>
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<b>Brewing Success: A Meeting Grounds Public Relations Program</b>	<b>F2</b>	<b>1:50</b>	<b>South Glacier</b>
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This project, created for Public Relations Research (COMM 438), explored the public relations potential for the Meeting Grounds in five specific areas: Media, Internal, Community, Consumer, and Crisis Communication. The Meeting Grounds is an independent and unique coffee company from St. Joseph, Minnesota. It is the only coffee retailer in the area to roast its beans locally. Research established that the Meeting Grounds had a loyal following of regular customers, but no clear plan for its variety of publics. This created an opportunity to recognize individual publics and design a plan with specific objectives and programs. Among other things, the programs include news releases, promotions, community leader alliances, and coffee donations. Since the findings have not been applied in the business setting, there are evaluation recommendations to measure each program's effectiveness. This project, created strictly for academic purposes, attempts to harmonize Meeting Grounds efforts with its varied publics by recognizing opportunities in these five specific areas. The Meeting Grounds success is a product of its commitment to quality and service. This project builds specific relationships with a variety of publics to enhance that commitment.

**Student(s)**

Connolly, Ray

**Sponsor(s)**

Heinrich, Lisa

<b>St. Cloud Hospital Internship</b>	<b>F3</b>	<b>2:10</b>	<b>South Glacier</b>
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The unexplained deaths of two St. Cloud Hospital (SCH) patients occurred Sunday, November 11, 2001, shortly after undergoing knee surgery at the hospital. This presentation is a synopsis of my experiences as a communications intern during this time of crisis at SCH. It outlines steps taken by St. Cloud Hospital's Communication Staff to relay this information to its internal and external publics, and the manner in which it executed these steps. Also discussed are specific actions taken by SCH, the Minnesota Department of Health, and the Centers for Disease Control to research this incident and prevent future occurrences. Some of the conclusions drawn from this research will be presented. The main focus of this presentation is how I, as a St. Cloud State University Mass Communications student, relate my academic knowledge to this internship experience, specifically, in crisis communication. A team of seven communications specialists were given the difficult task of keeping the image of SCH positive after two patients died from a very routine and low-risk surgery. As an intern, I gained a unique perspective on crisis management after viewing from within how this task was achieved. Does the information in my public relations textbook agree with the approach taken by this team of specialists? You will find out.

**Student(s)**

Opp, Jeff

**Sponsor(s)**

Heinrich, Lisa

<b>Title and Abstract</b>	<b>Presentation ID</b>	<b>Time</b>	<b>Room</b>
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<b>Crisis Management in Public Relations: A Case Study</b>	F4	2:30	South Glacier
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Crisis management, as a strategic method in public relations, appeared in the corporate world only in the last few decades. Rapid technological change and a growing dependence on new technologies have led corporations to emphasize the need to prevent and control technological breakdowns. Therefore, crisis management has become an important area for corporate entities to understand and develop. Researchers have offered various theories, methods and protocols designed to aid organizations in the event of a crisis. This research paper explores the application of Steven Fink's crisis management theory in the analysis of an actual crisis, the crash of ValuJet Flight 592. This case analysis focuses on how one company exercised good management during a major crisis and identifies effective crisis management guidelines developed in the field.

**Student(s)**

Henick, Anne Marie

**Sponsor(s)**

Rodriguez, Ilia

<b>Predicting the NBA Draft</b>	G1	1:30	Ballroom A
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Whether to apply for the NBA draft or continue one more year of college basketball eligibility is an important question. A move to stay in college is becoming less and less popular. I wish to further explore the decision of players to continue their collegiate eligibility. I have collected multivariate data from all division-one players eligible for the 2001 NBA draft. This database includes potential draft predictors for all college seniors and any early entry candidates. Using logistic regression and principal components I came up with ten different models, choosing three in the end. With these three models I performed cross validation to calculate the probability a player is to be drafted (their "bling" number). These "bling" numbers will allow athletes a statistical evaluation of their draft likelihood. I will show the results of this work on the 2001 NBA draft comparing the accuracy of my models against the actual outcome. I conducted case studies of individual players who might have improved their draft position by staying in school. Finally, I will look ahead to ranking current players based on my prediction of the 2002 draft using the 2001 model.

**Student(s)**

Bishop, Todd

**Sponsor(s)**

Gajewski, Byron

<b>Appropriateness of the Paired t-test from Poisson Data</b>	G2	1:50	Ballroom A
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Undergraduate statistics texts indicate that the paired t-test is inappropriate for non-normal data with small sample sizes. Robustness of the paired t-test to these assumptions is assessed with paired Poisson data motivated from an actual medical study. The data in the medical study are discrete, violating the assumption of the paired t-test. The Method of Moments was used to generate parameters for the Poisson distribution. From simulated data, we were able to show that as the sample size increases, power increases at an acceptable rate. Therefore, we argue that the paired t-test is appropriate in this paired Poisson setting. In the medical study, the goal was to quantify the significance of middle ear infection and surgery on hearing loss. Thirty guinea pigs were randomly assigned into three groups based on the type of infection induced. Two days after middle ear injection, the guinea pigs underwent surgery. Hearing was measured immediately before, and seven days following surgery. Electrocochleography was performed to measure hearing threshold. Clicks were measured at different discrete decibel levels.

**Student(s)**

Merkel, Stacia

**Sponsor(s)**

Gajewski, Byron

Title and Abstract	Presentation ID	Time	Room
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<b>Demonstrating the Estimation of Censored Distributions to Students of Statistics</b>	G3	2:10	Ballroom A
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Censored data is often an uncontrolled reality in many data sets. Additionally, an incorrect estimation of the distribution parameters is a common side effect if this is ignored. Maximum Likelihood Estimation (MLE) of the parameters of censored distributions provides very accurate parameter estimators. In teaching students to first understand the steps involved in obtaining estimated parameters for censored data, they will become more prepared to accurately deal with it in general data analysis. While tools exist in order to handle censored datasets, learning the fundamentals of estimation of censored distributions is important. My focus lies in understanding how and why using MLE will more accurately estimate distribution parameters for censored datasets, as a result providing a template through which students will better learn the necessary methods to deal with censored data. I present four suggested steps to better understand the estimation of parameters when dealing with censored data. Understanding the concepts takes place through application of mathematical statistics, simulation, working with statistical software, and through analysis of an actual data set.

**Student(s)**

Nelson, James

**Sponsor(s)**

Gajewski, Byron

<b>Comparison of Algorithms in Solving Minimum Sum of Diameters Clustering Problem</b>	G4	2:30	Ballroom A
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A set of  $n$  entities and the dissimilarity between a pair of entities can be represented by a graph with  $n$  vertices with the length of edge representing the dissimilarity between the vertices it connects. Minimum sum of diameters clustering problem seeks to partition the vertices in two separate clusters such that the sum of the length of two largest edges in two clusters is minimized. Minimum sum of diameters clustering can be solved by reduction to determination of the satisfiability of a 2- Conjunctive Normal Form or 2-SAT expression. Hansen provided an algorithm that solved  $O(n \log n)$  2-SAT instances and ran with time complexity  $O(n^3 \log n)$ . Sarnath provided an improved dynamic digraph algorithm that solved  $O(m)$  2-SAT instances on a graph with  $m$  edges and ran with time complexity  $O(n^3)$ . Algorithms were implemented to partition instances of a complete graph having  $n = 50$  to  $n = 500$  vertices where all the vertices are connected with each other. In tests of the two algorithms on these instances, the Sarnath algorithm consistently performed better to find the edges of the largest length of two clusters such that the sum is minimized.

**Student(s)**

Khan, Mynul  
Noman, Zubair  
Ramadani, Ahmad

**Sponsor(s)**

Sarnath, Ramnath

<b>Title and Abstract</b>	<b>Presentation ID</b>	<b>Time</b>	<b>Room</b>
<b>Modifications of the Lifetime of the Omega Particle</b> <p>Current experiments in heavy ion colliders involve gold and lead beams generating a “fireball” of strongly interacting matter at temperatures approaching a trillion degrees Kelvin. Due to the fireball’s brief existence, it cannot be examined directly; instead, it can be studied by sifting through the particle debris. Individual particle properties, such as the lifetimes of the particles involved, affect the final state in identifiable ways. It is expected that the extreme conditions within the fireball alter particle lifetimes as compared to free space. My research involved exploring the lifetime of the omega particle in the medium of the fireball. We found that the omega particle decays, on average, sooner than it would in free space. This impacts the experiments by opening up the possibility that some omega particles decay inside the fireball, changing its spectra dramatically.</p> <p><b>Student(s)</b> Kakuk, Michael</p> <p><b>Sponsor(s)</b> Haglin, Kevin</p>	G5	2:50	Ballroom A
<b>Smoke Out the Smokers?</b> <p>Due to increasing awareness of the harmful effects of first and second-hand smoke, and to nationwide legislation prohibiting smoking in public places, the Saint Cloud State University (SCSU) Survey conducted a study on student smoking and how it affects students' views on smoking prohibitions being implemented on the SCSU campus. The SCSU survey team and the students conducted the study using the computer assisted telephone interviewing (CATI) system. The method used to obtain the data was systematic random sampling of currently enrolled SCSU students living anywhere in the state of Minnesota. Our main goal is to ascertain student views on the smoking policy on the SCSU campus. We will also take a comparative look at how recent smoking prohibitions in residence halls on the SCSU campus compare to policies in place at other universities throughout the country. We will compare the empirical data from three studies conducted from 2000 to 2002 on student smoking issues. We will also be including data from the 2002 student survey on student views about the new regulations on smoking in residence halls. In addition, our study will provide possible variables influencing student views on implementing smoking policies.</p> <p><b>Student(s)</b> Bennett, Angela Hoogeveen, Laurie</p> <p><b>Sponsor(s)</b> Kukoleca-Hammes, Michelle</p>	I1	1:30	Mississippi
<b>Jesse Ventura: Time Series Examination of His Role Performance as Governor. of Minnesota</b> <p>The Governor of Minnesota is constitutionally required to perform many roles, including managing the state bureaucracy, making public policy, and leading the legislature. It is typical for Minnesota governors to also perform extra-constitutional roles, such as leading their political party. The purpose of this presentation is to, first, operationalize these roles and, second, illustrate how Jesse Ventura has approached filling the obligations of his position as Governor of Minnesota throughout his term. Survey data was used to gather the opinions of Minnesota residents on how their governor has performed in the many roles associated with the office. Minnesota public opinion was gathered from systematic random sample surveys conducted by the St. Cloud State University Survey, The Star Tribune, and the Pioneer Press. Each survey posed questions about Jesse Ventura's performance in specific roles as well as his overall performance. The data gathered was then analyzed by the SCSU Survey (2001).</p> <p><b>Student(s)</b> Johnson, Mina Lundy, Dave Peterson, Tesha Rodriguez, Marisol</p> <p><b>Sponsor(s)</b> Wagner, Steven</p>	I2	1:50	Mississippi

<b>Title and Abstract</b>	<b>Presentation ID</b>	<b>Time</b>	<b>Room</b>
<p><b>Minnesota Lottery</b></p> <p>For the past 10 years, the Minnesota State Lottery has contracted with the SCSU Survey to conduct a scientific random telephone survey of 2,000 or more Minnesota adults. Some of the purposes of this survey are to examine Minnesota views and behaviors with respect to gambling. Our presentation will examine the overall patterns of gambling in Minnesota with the primary focus on Indian casinos. We will then focus on certain primary demographics such as age, gender and household income. We hypothesize that those more likely to gamble at Indian casinos will be younger, male and lower income. Our findings on this study will be compared to nationwide results to determine who are the possible problem gamblers in Minnesota.</p> <p><b>Student(s)</b>  Jabs, Angela  Kapoor, Sonu  Mahlum, Anne</p> <p><b>Sponsor(s)</b>  Frank, Stephen</p>	I3	2:10	Mississippi
<p><b>Political Participation in Minnesota</b></p> <p>There are two primary objectives of this research: 1) to assess how active Minnesota adults are in political activities, and 2) to evaluate the relationship between political awareness and active political participation in Minnesota. The data of this research is taken from the Minnesota statewide survey conducted by St. Cloud State University (SCSU) Survey during Fall 2000 and Fall 2001, of all Minnesota adults based on a random sample, using computer-assisted telephone interviewing (CATI) technique. I examine seven questions of interest in each of the surveys, two of them surveyed the level of political interest and awareness of the respondents, and another five of them asked about political activities, such as attending political speeches and rallies, signing petitions, communicating with government officials, and others that the respondents might have been involved in. This research will also take supplementary data from the SCSU student survey conducted by the same SCSU survey during Spring 2001, in order to partially evaluate similarities or differences between the level of political participation between average Minnesota adults and university students.</p> <p><b>Student(s)</b>  Chow-Bing, Ngeow</p> <p><b>Sponsor(s)</b>  Kukoleca-Hammes, Michelle</p>	I4	2:30	Mississippi
<p><b>Ritualistic Racing: Using Magic at Canterbury Park</b></p> <p>“Race track magic” is a concept that describes bettors’ behavior in a study conducted at the thoroughbred race track, Canterbury Park, in Shakopee, Minnesota, during the late summer of 2001. This anthropological research is based on Bronislaw Malinowski’s study of magic use in the Trobriand Islands during the 1930s and Marvin B. Scott’s research on betting behavior at race tracks in the 1960s. It theorizes that bettors with less knowledge and resources will be more apt to engage in race track magic so that they are able to feel secure about their wagers. Those bettors with more knowledge and resources will not use magic because they are already secure in their wagering styles. The research was done through participant-observation and short one-on-one interviews with bettors.</p> <p><b>Student(s)</b>  Stuart, Susan</p> <p><b>Sponsor(s)</b>  Schultz, Emily</p>	I5	2:50	Mississippi

<b>Title and Abstract</b>	<b>Presentation ID</b>	<b>Time</b>	<b>Room</b>
<b>Social Identity as It is Shaped by Group Membership</b>	J1	1:30	Ballroom B

This panel consists of a group of speakers who will read from works they wrote in Social Psychology (SOC 365) for Assistant Professor Mariah Tenamoc. The focus is on how group membership shapes a person's identity. People are simultaneously members of many groups classified largely as the "human race," to the most intimate two-person groups as "spouses" or "parent-child," for instance. Particular characteristics may be demonstrated to be considered the "heart" of a particular group membership. There may be social acts making group members easily recognizable. Particular to most groups are symbolic characteristics and shared meanings, sometimes observed in common terminology. Group memberships influence or contribute to a members' standards, attitudes, and aspirations. Each student will report on an individual's identity as it has been shaped by a particular group membership. The students provide contextual information about the group and more precisely discuss how an individual they each identified responded to various questions about group membership and its influence on identity.

**Student Presenters:**

- Sydney Awe, "Case Study: Married for 25 Years"
- Emily Bezdicek, "Case Study: A High School Football Coach"
- Niki Frohman, "Case Study: A Single Mother"
- Shawna Lien, "Case Study: A Single Father Trying to Gain Custody of His Son"
- Audra Magel, "Case Study: Being Gay"
- Christina Roe, "Case Study: An African Immigrant"
- Kristen Waisley, "Case Study: An Interracially Married Couple"

**Student(s)**

Awe, Sydney  
Bezdicek, Emily  
Frohman, Niki  
Lien, Shawna  
Magel, Audra  
Roe, Christina  
Waisley, Kristen

**Sponsor(s)**

Tenamoc, Mariah

Title and Abstract	Presentation ID	Time	Room
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<b>La cortesía en tres culturas: La china, la americana y la Hispana (Courtesy in Three Cultures: Chinese, American and Hispanic)</b>	K1	1:30	Watab
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This study examines how Chinese, American and Hispanic cultures view politeness. When one culture interacts with another, misunderstandings manifest themselves between cultures and groups. Politeness in cross-cultural communication is one of the ways members of a group maintain relationships; it is instrumental in keeping different cultural groups together as one community. In this study, I interviewed three professors, two from Saint Cloud State University and one from Ecuador. Each of these professors shared their points of view about how they see politeness in their own cultures. In this study, I used Brown and Levinson's politeness theory and I separated politeness features into categories that included "taking turns," "listening strategies," "eye contact," "compliments" and "face saving acts." I studied each feature and discussed each culture separately. I included a chart to illustrate the differences between these three cultures and summarized my findings. Different cultures express politeness differently, so we need to understand other cultural codes to be able to communicate successfully.

**Student(s)**

Lin, I-Chun

**Sponsor(s)**

Splittgerber, Lisa

<b>La Relación Madre -Hija Según Esther Tusquets y Pedro Almodóvar (The Mother-Daughter Relationship According to Esther Tusquets and Pedro Almodóvar)</b>	K2	1:50	Watab
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This paper analyzes the relationship between mothers and daughters in Esther Tusquets' novel, *El mismo mar de todos los veranos*, and Pedro Almodóvar's 1991 film, *Tacones lejanos*. In both works, the daughters are deeply affected by emotional abandonment by their mothers, although both daughters lead successful professional lives, they are marked by feelings of failure as a result. The role and problems of women are important topics for both Tusquets and Almodóvar, although Tusquets writes from personal experiences and Almodóvar from years of observing women. The images they paint of modern women are very complex. In both works women are portrayed as strong, rational, independent and, paradoxically, as weak, emotionally charged, and dependent on their personal relationships for stability. The daughters, Esther (*El mismo mar*) and Rebeca (*Tacones lejanos*), are similar in several ways. Both daughters are independent, yet they continue to suffer from the effects of abandonment by their mothers. Despite their efforts, their mothers continue to deny them the love, respect and approval they long for. The grief and frustration the daughters feel over their failed relationships with their mothers manifests itself in very similar ways for each daughter; both daughters suffer from perceived inferiority and personal failure, the desire to gain their mothers' approval and failed spousal relationships. The emotional impact of abandonment is in no way lessened by the independence of the daughters as modern women. Although both daughters have friendships, spouses, and successful professional lives, they are unable to overcome the deep emotional wounds from their mothers that negatively impact their daily lives.

**Student(s)**

Gallien, Kathryn

**Sponsor(s)**

Splittgerber, Lisa

<b>Title and Abstract</b>	<b>Presentation ID</b>	<b>Time</b>	<b>Room</b>
<b>Ernesto Che Guevara</b> <p>Although it has been more than 30 years since his tragic death in Bolivia, Ernesto Che Guevara continues to remain an important revolutionary figure to people all over the world. He died fighting for the belief that one day the social inequalities of the world could be ended, and in some mysterious way, his powerful image continues to impact and inspire others all over the world to fight for the same cause. Many of us may only know Che through the T-shirts we pass on the street or from the poster that hangs on the weird roommate's wall. We see the rough face and shaggy hair and wonder, "who the heck is that?" Living in the United States, we have not had the misfortunes in our lives that would drive individuals like Che to go to such extremes as he did. We have had the blessing of being born in a peaceful and calm environment, untouched by political oppression, economic exploitation or social injustices, making it difficult to sincerely understand the motives and reasons that stood behind Che and everything he did. By taking a historical/biographical approach to his life and the somewhat prophetic events that occurred within it, this study attempts to better our understanding of him. From his childhood in Argentina and his motorcycle trips through South America to the Cuban Revolution and guerrilla warfare, we can gain better insight to this powerful and mystical figure that continues to grace and inspire all who embrace his cause. In the end, Che will mean more to you than just some hairy guy and the weird roommate will no longer seem so weird.</p>	K3	2:10	Watab
<b>Student(s)</b> Black, Kyle	<b>Sponsor(s)</b> Splittgerber, Lisa		
<b>Attitudes Toward War on Terrorism</b> <p>The research is based on a "new" war, the War on Terrorism on the United States of America. Research was conducted to determine if attitudes towards war and peace would differ between cohort groups. We were especially interested in whether cohort groups would have different coping reactions, would the older cohort groups react differently and would generational effect prove the same as other research on previous wars? Using developed scales and open-ended questions, we surveyed three cohort groups to examine reactions to this "new" war. Our research found a significant relationship between the younger and older cohorts with regard to aggressiveness and avoidance, which differed from the middle age cohort.</p>	L01	3:00	Ballroom
<b>Student(s)</b> Houser, Anne Moone, Rajean Robinson, Kari Weidner, Wendy	<b>Sponsor(s)</b> DeVoe, Marlene		
<b>Shiny: A Unix-Based Program for Astronomical Image Acquisition</b> <p>The purpose behind this project was to create a Linux-based software application that could interface with the digital cameras that contain a CCD (charge-coupled device) used at the SCSU observatory. These CCD cameras are attached to telescopes in order to acquire digital images of astronomical bodies. These images are then reduced and analyzed with a variety of Unix-based software. The problem that the observatory faces is that all software for controlling these devices is only available for the Microsoft Windows operating system. Images need to be moved from the Windows workstation to the Linux server before any work can be done on them. Shiny (the name of this project) is a Unix-based program that interfaces with the CCD camera to acquire images. This eliminates the need to transfer images before analyzing, making the entire process quicker and more efficient. Shiny will also extract one-dimensional spectra from a two dimensional spectral image, simplifying the task of spectral image analysis.</p>	L02	3:00	Ballroom
<b>Student(s)</b> Ward, Jeffrey	<b>Sponsor(s)</b> Pinnick, David		

Title and Abstract	Presentation ID	Time	Room
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<b>Prey Preferences of <i>Microvelia buenoi</i> (Hemiptera: Veliidae)</b>	L03	3:00	Ballroom
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A goal of behavioral ecology is to understand interactions and mechanisms that mediate competition between species. This involves factors such as predator-prey interactions and prey preferences. Such feeding behaviors are important because they may influence the success of one species over another. Although this has been well-demonstrated in several aquatic and semi-aquatic insects, very little has been reported on the prey preferences of the smallest of these. The prey preferences of a broad-shouldered water strider, *Microvelia buenoi*, for two common insects in its habitat were examined. A laboratory experimental approach was taken to evaluate the influences of prey type, prey condition, predator density, and prey density on prey preference. The results were statistically analyzed using logistic regression. It was determined that prey type was not significant ( $p>0.35$ ). Prey condition and predator density were significant. The variable prey density was significant ( $p<0.01$ ) and the time lapse was not found to be significant ( $p>0.74$ ). The results point towards prey condition and predator density as most significant in influencing prey preference of *M. buenoi*. As such, the roles of hunger levels, detection methods, and feeding methods also need to be examined through additional experimental studies.

**Student(s)**

Gabrawy, Mariann

**Sponsor(s)**

Marcattilio, Anthony  
Voelz, Neal

<b>Effects of Light Intensity on the Growth of <i>Rhamnus Cathartica</i></b>	L04	3:00	Ballroom
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We tested the effect of light intensity upon *Rhamnus cathartica* in order to determine if it will infest the interior, as well as the exterior of a woodland. We collected data from Talahi Woods in St. Cloud, MN. Photometer readings were taken at six different sites representing the light intensity received at the edge of a forest and of that received in the interior of the forest. The population of *R. cathartica* was counted at each site and transplants were brought to the lab. We used field data to design experiments in the laboratory. The lab experiments imitated the field setting and isolated light as a variable. Light and shade environments were tested upon seedling germination and transplant growth. We used anova to determine whether or not the data we found was significant. The results indicate seed germination is significantly influenced by the amount of light. We concluded that *R. cathartica* germinates more proficiently in shady environments than it does in environments receiving normal light intensity.

**Student(s)**

Evans, Addie  
Krueger, Noel  
Sakry, Christy  
Whipple, Scott

**Sponsor(s)**

Turner, Sandra

<b>Housing Affordability</b>	L05	3:00	Ballroom
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The main purpose of our research is to become more knowledgeable about the issue of affordable housing in the five-city area of St. Cloud, Sartell, Sauk Rapids, St. Joseph, and Waite Park. We also researched other parts of the country to gain an understanding of what has been done on a national level to address the issue of affordable housing. The main findings are relatively inconclusive. Most of our research, both primary and secondary, showed there is a problem with affordable housing. Nevertheless, what to do with it and who is responsible for it is a topic of debate. After our research, we came up with a few recommendations. Some of the main ones are: adjusting ordinances such as zoning, regulations, land use, and increased density; educate the public, collect more data, find the core of the problem, and rehabilitate existing homes.

**Student(s)**

Dyrdahl, Matthew

**Sponsor(s)**

Rigopoulou-Melcher, Aspasia

Title and Abstract	Presentation ID	Time	Room
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### **Bioassay Protocols for Assessing Pharmaceutical Contamination in the Food Web**

L06

3:00

Ballroom

Recently in the United States and some parts of Europe, there has been concern over water contamination through the expulsion of wastewater effluent via treatment facilities. This bioassay is the first of its kind based on observing effects from the base to the crest of the trophic hierarchy. One such compound, Ibuprofen, which is consumed by the hundreds of tons each year in the U.S., has come under recent scrutiny. This compound has been found universally in surface waters throughout the U.S. and Europe and is also a common contaminant of drinking water. The effects of Ibuprofen on the natural environment are unknown and this study will test the ability of a common diatom, *Cyclotella meneghiniana*, a key food source for developing fishes, to tolerate this compound. The lipid concentration, electro-microscopic morphology, and fatty acid concentrations will be assayed to determine its effect on overall health. Diatoms have been used in many past studies relating to environmental contamination due to their sensitivity in such matters. Being readily available, inexpensive to maintain, and their rapid reproductive rate makes *C. meneghiniana* an ideal choice for use in this study. It will pave the way for a low-cost, relatively timely evaluation of environmental risk, and an easily adaptable way to determine initial risk assessment. Fathead minnows will be exposed to *C. meneghiniana* as a food source. Their maturation, reproductive success, and general growth rates will be monitored and documented. Fathead minnows are another ideal organism for this study because of their rapid reproductive rates, maintainability, and the fact they are a key food source for other organisms. They have also been used in past experiments dealing with environmental risk situations.

#### **Student(s)**

Tedrow, O'Niell

#### **Sponsor(s)**

Julius, Matthew  
Schoenfuss, Heiko

### **Population Dynamics of an Endemic Diatom in the Laurentian Great Lakes**

L07

3:00

Ballroom

Diatoms are a group of algae forming siliceous frustules, composed of two halves or valves. These valves are bound together, enclosing the unicellular organism. Diatoms can be solitary or colonial. Diatoms reproduce both sexually and asexually. During asexual reproduction, the diatom splits, becoming two new diatoms. Asexual reproduction causes diatoms to get smaller after each division. Only when the diatom reproduces sexually is it able to regain a larger size. Understanding how diatoms reproduce is important in discovering the reason for the disappearance or large reduction of endemic diatoms in the Laurentian Great Lakes. Because of a diatom's siliceous nature, they are readily preserved sediment samples retrieved in paleolimnological investigation and in herbarium material from historical plankton collections. Therefore, we are able to identify which diatom species were present in the Laurentian Great Lakes before European settlement. By comparing diatoms from pre-settlement days to those of today, we can discover changes in species composition and size. This information can be linked to the introduction of exotic species and to environmental changes. This data will provide more information on the identification of the endemic Great Lakes species, and when they existed. Competition between species will be examined. This can show us if an environmental change occurred at the time of the change in species composition.

#### **Student(s)**

Krueger, Noel

#### **Sponsor(s)**

Julius, Matthew

<b>Title and Abstract</b>	<b>Presentation ID</b>	<b>Time</b>	<b>Room</b>
<p><b>Automated Vehicle Parking System</b></p> <p>Increased technology has led to an increase in the demand for automated systems throughout our society. Examples of these can be found on our automobiles today: automatic starters, remote entry, and driver recognition are just a few illustrations. We are working to develop a new, practical system – the Automated Vehicle Parking System. Our project is a system demonstrator that will model how a vehicle could be directed from a starting point to a specified final location. This will occur without any operator intervention, by means of coordinated communication between sonar sensors, microcontrollers/microprocessors, RF transceivers, and the vehicle itself. A full-scale implementation of this system could eliminate the potential for human error in parking a vehicle, protecting it and nearby structures from collision damage.</p> <p><b>Student(s)</b> Doss, Jeff Ihla, Conrad Olson, Mark</p> <p><b>Sponsor(s)</b> Hou, Ling</p>	L08	3:00	Ballroom
<p><b>The Effects of Ribose Ingestion on Type 2 Diabetics</b></p> <p>Type II diabetes accounts for 90 to 95% of all new diabetes cases diagnosed each year. Type II diabetes, sometimes called adult onset diabetes, is a disease characterized by both insulin deficiency and insulin resistance. People with Type II diabetes control their blood glucose levels by diet and exercise, insulin therapy or anti-diabetic drugs. The goal of this study was to determine the effects of two different sugars (ribose and glucose) and a glucose/ribose combination on people with Type II diabetes. Glucose is a six-carbon sugar that causes insulin secretion and an increase in blood glucose levels in healthy subjects. People with type II diabetes who ingest glucose also experience an increase in blood glucose concentration, but experience a reduced insulin response due to insulin deficiency. Ribose is a five-carbon sugar that has been found to cause increased insulin secretion as well as decreased blood glucose in both healthy subjects and diabetics. The exact mechanism by which ribose causes a drop in blood glucose rather than the expected rise is not known. The purpose of this study was to examine the effects of feeding five grams of glucose, five grams of ribose and ten grams of a glucose/ribose combination on insulin and blood glucose levels in people with Type II diabetes.</p> <p><b>Student(s)</b> McNair, Megan Oien, Josh</p> <p><b>Sponsor(s)</b> Seifert, John</p>	L09	3:00	Ballroom

<b>Title and Abstract</b>	<b>Presentation ID</b>	<b>Time</b>	<b>Room</b>
<b>Phosphorous-31 Nuclear Magnetic Resonance Spectroscopy Studies of the Reaction Catalyzed by Phosphoglycerate Kinase</b>	L10	3:00	Ballroom

Nuclear Magnetic Resonance (NMR) spectroscopy is an extremely valuable technique in chemistry today. Through NMR spectroscopy, the content, purity, and molecular structure of a sample can be determined with a high degree of accuracy. The purpose of this research is to find a way to incorporate NMR spectroscopy into an undergraduate laboratory experiment. The proposed experiment will involve the students determining the equilibrium constant for an enzyme catalyzed reaction through Phosphorous-31 NMR spectroscopy. The reaction studied will be that catalyzed by 3-Phosphoglycerate Kinase, which converts 3-phosphoglycerate and adenosine triphosphate to 1,3 bisphosphoglycerate and adenosine diphosphate. The students first identify the chemical shifts associated with all of the phosphorous containing components by collecting the spectra of the individual reactants and products. They then prepare samples with stoichiometric amounts of products or reactants, and collect spectra before and after reaching equilibrium. By integrating the spectra, equilibrium constants can be calculated. Efficiency is a key component to the experiment. Undergraduate laboratories are under time restrictions. With the 3-Phosphoglycerate Kinase system only eight minutes, ten seconds are needed to run one spectra; thus, more students will have an opportunity to gain hands on experience with NMR spectroscopy.

**Student(s)**

Frodl, Brett J.

**Sponsor(s)**

Winter, Nathan

<b>Determining the Relationship between Relative Humidity and Aerosol Sulfate: A Field Study</b>	L11	3:00	Ballroom
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Air quality is and will continue to be an important health concern and environmental issue. Some of the contributing factors to air quality that require more investigation are aerosols and how the interaction of water vapor with aerosols can affect air quality. Previous studies have shown that the presence of water vapor in the air facilitates an increase in aerosol size and mass for certain hygroscopic aerosols. When the sizes of the aerosols lie approximately in the range of visible light ( $4\text{ }\mu\text{m}$  -  $7\text{ }\mu\text{m}$ ), light is scattered by Mie scattering, which scatters light more efficiently than Geometric or Rayleigh scattering, and thus reduces visibility. The goal of this study is to examine the relationship of aerosol sulfate with ambient water vapor in a temperate region of North America and assess how that relationship affects air quality. The relationship between water vapor and relative humidity was evaluated by computing the correlation coefficient of the two quantities, using data collected June 2001 through August 2001 as part of the Program for Research on Oxidants: Photochemistry, Emissions, and Transport (PROPHET) Summer 2001 Study.

**Student(s)**

Kaufeld, Wendilyn

**Sponsor(s)**

Nastrom, Gregory

Title and Abstract	Presentation ID	Time	Room
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<b>The PAI as a Measure of Substance Abuse Among Medical Patients</b>	L12	3:00	Ballroom
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This study investigates the utility of the Personality Assessment Inventory (PAI) to assess substance abuse disorders among medical patients. Patients with substance abuse problems present elevated risk factors for mood changes. It was hypothesized that patients with substance abuse problems will be detected via the PAI substance abuse scales. Further, convergent validity of the PAI mood scales were assessed. The PAI is a face-valid self-report measure of behaviors that have scales measuring mood and substance abuse. Participants were 120 males who had been referred to a hospital based upon consultation service for psychological evaluation and/or diagnosis. Convergent validity was tested via correlation between the mood subscales in the PAI and the Beck Depression Inventory (BDI-II). Of the 120 patients surveyed, 11.5% indicated substance abuse problems via the Alcohol subscale (t score range of 63 - 102), 69.4% indicated moderate use (t score range of 41-59). These numbers are consistent with previously published incident rates for substance abuse among medical patients. The BDI-II was not significantly associated with the Alcohol subscale of the PAI ( $r = -.43, p > .05$ ), suggesting divergent validity. Correlation between the BDI and the Depression subscale of the PAI was high ( $r = .615, p < .05$ ) indicating convergent validity for these two measures of depressed mood. The PAI subscales for Depressed Mood and Alcohol scales were significantly correlated ( $r = .589, p < .05$ ), suggesting independent sources of variance. The PAI proved useful for assessing possible substance abuse and mood problems. There was adequate convergent validity for mood related problems as denoted by the moderate correlations between the PAI mood scales and the BDI-II. There was a strong positive correlation between self-report of substance abuse and mood disturbance. The PAI appears to measure unique sources of variance among mood symptoms in medical patients.

**Student(s)**

Green, Amy

**Sponsor(s)**

Godding, Phillip

<b>Application of a Fish Index of Biotic Integrity to Cold Water Streams of Central Minnesota</b>	L13	3:00	Ballroom
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The index of biotic integrity (IBI), developed from information on the structure, composition, and functional organization of fish assemblages, is commonly being used in North America to assess the health of aquatic ecosystems. Fish assemblages have been shown to be useful in evaluating the health of aquatic systems due to their sensitivity to both direct and indirect anthropogenic stresses. Fish are also considered as good indicators of pollution because of their relatively long life span, mobility, and trophic status. The objectives of this research are to provide an overview of IBI development considerations, interpretations, and to determine the effectiveness and flexibility of an IBI developed for cold water streams in adjacent regions. Data collected from 19 cold water (maximum daily mean water temperature <22 degrees C) streams in central Minnesota will be used to apply this previous version of the IBI developed in Wisconsin and determine if the Wisconsin IBI accurately reflects the health of central Minnesota cold water streams.

**Student(s)**

Steffenson, Cade

**Sponsor(s)**

Voelz, Neal

Title and Abstract	Presentation ID	Time	Room
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<b>Seeing the Tree for the Forest: Difficulties in Selective Attention</b>	L14	3:00	Ballroom
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In this study selective attention is investigated. Selective attention is the process by which we decide what is relevant and what should be ignored. For example, people are engaged in selective attention when they are listening to someone in a noisy room. Selective attention occurs in any sense modality. This study focuses on the visual modality. A computer showed undergraduates a group of three stimuli, which could be either numbers or letters. Their task was to identify the middle stimulus. The middle stimulus was the target and the other two stimuli were distracters. For each trial, the stimuli could be either all from the same category or the distracters were from a different category than the target. In the first experiment, students took less time to identify a letter when numbers surrounded it (e.g., 5A5) than when all three stimuli were letters (e.g., EAE). For number targets, students showed the opposite effect. Participants were quicker at identifying numbers when the target and distracters were from the same category. This result may have been due to confounding stimulus type with response difficulty. A second experiment will be conducted. In that experiment, participants will be randomly assigned to identify either letters (A, E, K, and M) or numbers (3, 4, 5, and 6) only. The response difficulty should be equated between conditions. It is hypothesized that identification will be faster when the target is from a different category than the distracters. Implications for selective attention theories are discussed.

**Student(s)**

Dickhudt, Anne

**Sponsor(s)**

Valdes, Leslie

<b>Studies Using the Human Leukemic Cell Line HL-60</b>	L15	3:00	Ballroom
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Katai J. Nkhata and Dr. J. Meerschaert, Department of Biological Sciences, St. Cloud State University

The human leukemia cell line HL-60 was first established in culture in the late 1970's. The cells were isolated from a patient with acute promyelocytic leukemia. In cell culture, these cells behave as immature precursor cells of the immune system, with the ability to differentiate into several types of white blood cells. One differentiation agent, phorbol 12-myristate 13-acetate (PMA), causes the HL-60 cells to differentiate into monocyte-like cells. Upon differentiation to a monocytic phenotype, HL-60 cells begin to express measurable quantities of important cell surface receptors, namely beta 7 integrin and CD9, both of which have been shown to increase human eosinophil survival in culture. In the current study, when HL-60 cells were treated with 16 nM PMA for a minimum of 20 hours, a striking morphological change occurred. The cells became adherent to the culture flasks and some exhibited long extensions of the cell membranes. This was in contrast to control cultures, to which no PMA was added, and the HL-60 cells remained in suspension and were non-adherent to the culture flasks. Currently, work is in progress to make a determination of the general morphology of the PMA-treated HL-60 cells when compared to a mouse macrophage cell line known to be adherent (H3612e). Additionally, experiments will be conducted to determine the expression of beta 7 and CD9 molecules on the differentiated HL-60 cells. Ultimately, an important goal is to investigate the relative localization of these molecules on the cell surface in order to ascertain the existence of a physical interaction between CD9 and beta 7 that may be physiologically relevant.

**Student(s)**

Nkhata, Katai

**Sponsor(s)**

Meerschaert, JoAnn

Title and Abstract	Presentation ID	Time	Room
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<b>The Invasion of Species</b>	L16	3:00	Ballroom
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The primary objective of this analysis was to investigate whether there are universal advantages or mechanisms shared by invasive animal and plant species, and whether there are explicit conditions that predispose particular environments to invasions. A secondary objective was to examine the effect of invasive species on biodiversity both temporally and spatially, and at local and global scales. We first had to define invasive species. We then examined the biology and natural history of three invasive animal and three invasive plant species: *Boiga irregularis* (brown tree snake), *Sus scrofa* (wild boar), *Anaplophora glabripennis* (long-horned beetle), *Euphorbia esula* (leafy spurge), *Lythrum salicaria* (purple loosestrife), and *Phragmites australis* (common reed). Next, to determine our primary objective, we performed a comparison of our six species to assess if any relationships exist between them and the environments they invade. Finally, we studied the consequences of invasions on biodiversity to address our secondary objective.

**Student(s)**

Gonnion, Scott  
Kane, Dale  
Runadive, Sunita

**Sponsor(s)**

Arriagada, Jorge  
Julius, Matthew  
Turner, Sandra  
Voelz, Neal

<b>Relationships Between Job Satisfaction, Stress, and Burnout for Speech-Language</b>	L17	3:00	Ballroom
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The purpose of this study was to identify the factors that contribute to burnout and job satisfaction within the helping profession of speech-language pathology. Three surveys were sent to 17 speech-language pathologists who worked in a health care setting, 25 in an educational setting, and one in a private practice (N=43 total). All resided in Minnesota and North Dakota. The surveys included the Maslach Burnout Inventory (MBI), a Stress-Management Survey, and a Job Satisfaction Survey. Of the 43 participants, 42 (98%) returned surveys. Interviews were then conducted to gather more in-depth information from these 42 participants. Results from the MBI indicated that speech-language pathologists were more emotionally exhausted but had higher than average feelings of personal accomplishment when compared to normative data suggesting that speech-language pathologists were not burned out. Results from the Stress Management Survey generally indicated speech-language pathologists had difficulty managing work-related stress. The Job Satisfaction Survey addressed six areas. Results were negative in the area of time and workload management; mixed in the areas of bureaucratic restrictions, emotional/fatigue manifestations, and professional supports; and positive in the areas of instructional limitations and overall job satisfaction. Findings from the surveys and follow-up interviews indicated that many speech-language pathologists were satisfied with some aspects of their jobs. These results were consistent with other professions.

**Student(s)**

Blattenbauer, Tracy  
Durst, Alesha  
Gunderson, Katie  
Paxton, Jacqi  
Scott, Colet  
Simms, Allison  
Zimpel, Renae

**Sponsor(s)**

Whites, Margery

Title and Abstract	Presentation ID	Time	Room
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<b>Influence of Mood and Verbalization on Consumer Taste Preferences</b>	<b>L18</b>	<b>3:00</b>	<b>Ballroom</b>
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The purpose of this study was to manipulate mood (positive and negative) and verbalization (verbal and nonverbal) to examine the simultaneous influences of mood and verbalization on a consumer taste preference task. College students' preferences for different brands of potato chips were compared with Consumer Reports experts' ratings. Participants were put either into positive or negative moods and then tasted five brands of potato chips. Half of the participants described how the chips tasted; the others engaged in a nonverbal control task. All participants then ranked the chips for quality. I hypothesized that the combination of negative mood and verbalization would cause a pronounced "verbal overshadowing effect," in which describing complex stimuli has previously been found to impair consumer judgments. Unfortunately, the mood manipulation was not effective, so only the effects of verbalization were evaluated. Students who were asked to describe the potato chips seemed to agree less with the experts ratings compared to those in nonverbal condition. However, the results were not statistically significant. A larger scale study with a stronger mood manipulation will be needed to confirm these results.

<b>Student(s)</b>	<b>Sponsor(s)</b>
Yap, Yoke	Melcher, Joe

<b>A Bayesian Approach to Forecasting Enrollment at SCSU</b>	<b>L19</b>	<b>3:00</b>	<b>Ballroom</b>
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This project applied Bayesian principles in forecasting student enrollment at SCSU. Bayesian analysis consists of three main components: the prior distribution, the likelihood function, and the posterior distribution, which equals the product of the prior distribution and the likelihood. In this project, we collected information to construct the prior distributions, which represent the opinion or the degree of belief concerning an enrollment model, from the professionals whose jobs are related to enrollment management. Then we calculated a likelihood function and used it to generate a posterior distribution for the number of undergraduate students to enroll in spring 2002. The mean of this posterior distribution was used as a forecast of the undergraduate enrollment. Results for spring 2002 enrollment indicate an adequate forecast was made. Further forecasts for fall 2002 enrollment will be forthcoming.

<b>Student(s)</b>	<b>Sponsor(s)</b>
Tan, Mun Sie	Robinson, David

<b>Comet Observations Made From the SCSU Observatory</b>	<b>L20</b>	<b>3:00</b>	<b>Ballroom</b>
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In the summer and fall of 2001, the Comet Watchers research group observed two comets, C/2001 A2 and C/2000 WM1, at the Saint Cloud State University observatory. These observations were made using a Meade LX200 sixteen-inch reflecting telescope with an Apogee 7 charged-coupled device (CCD) camera attached to it. The images were corrected for pixel variations in the CCD chip via a process known as "flat-fielding," and they were also corrected for thermal noise. We used the reduced images that we obtained to search for fragmentation in Comet A2's coma and to study the structure in WM1's tail.

<b>Student(s)</b>	<b>Sponsor(s)</b>
Crandall, Peter	Womack, Maria
Kawecki, Michelle	
Reed, Sarah	
Richey, Eric	
Strom, Corey	

<b>Title and Abstract</b>	<b>Presentation ID</b>	<b>Time</b>	<b>Room</b>
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**Examination of Cell Surface Proteins on White Blood Cells**

L21

3:00

Ballroom

Darla Morrison and Dr. J. Meerschaert, Department of Biological Sciences, St. Cloud State University

The white blood cells in our body help us fight diseases and help keep us healthy. Sometimes, however, these cells can be triggered inappropriately leading to disease states in the individual. For instance, in people with allergies, two types of these cells, mast cells and eosinophils, are triggered against relatively innocuous substances such as cat dander or dust. Learning more about how these cells are triggered can lead to development of better therapies to help people with allergies or allergic asthma. Cell surface molecules on cells tell them where they are and help them determine whether to respond to foreign substances. Integrins are a family of such cell-surface molecules that bind to extracellular matrix molecules in tissues and, on immune cells, to proteins found in plasma and on the surfaces on blood vessel walls. In previous studies, Dr. Meerschaert has shown that when human eosinophils bind to fibronectin (an extracellular matrix protein) via the integrin alpha 4 beta 7 the cells live longer in vitro. This increased life may cause the cells to live longer in the lungs of asthmatics, making their disease worse. In this study, we have been examining the integrins expressed on cell lines of white blood cells in order to determine the best cell to work with in the lab. The ultimate goal is to use a cell line to determine the interactions of cell surface molecules on a cell that can be a model for human eosinophils.

**Student(s)**

Morrison, Darla

**Sponsor(s)**

Meerschaert, JoAnn

**Why use Macroinvertebrate Bioassessment to Measure Water Quality**

L22

3:00

Ballroom

Pollution from two sources, point and non-point, can impact water quality in streams. The Clean Water Act (CWA) of the 1970's was an effort to resolve the problems of water quality. In recent years point sources of pollution have been monitored and mitigated yet water quality in the nation's streams has still not increased to the level set forth in the CWA. Consequently, recent monitoring efforts have begun to focus on non-point sources of pollution. Traditional chemical methods of assessing water quality, when used alone, often do a poor job of detecting non-point impacts. A better method needs to be developed for the assessment of non-point impacts. The Environmental Protection Agency recently put forth a set of protocols that use bioassessment as an effective way to monitor non-point pollution. Bioassessment is the use of organisms living in the streams to measure water quality. One group of these organisms is macroinvertebrates. They are a very useful group of organisms for a bioassessment due to their wide range of responses to impacts, their abundance, and the ability to identify them to precise taxonomic levels. The purpose of this presentation is to explain how these protocols are used to determine water quality by conducting a rapid bioassessment of streams using macroinvertebrates.

**Student(s)**

Vollbrecht, Matthew

**Sponsor(s)**

Voelz, Neal

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**Title and Abstract****Presentation ID****Time****Room**

**Reproductive Health of Fish Exposed to Water-Borne Xenoestrogens**

L23

3:00

Ballroom

The presence of hormones and hormone-like chemicals in surface waters in Europe and the US has raised concerns about the possible health effects of these Endocrine Disrupting Compounds (EDCs) on wildlife and even humans. The purpose of this study was to determine whether exposure to xenoestrogens, a class of estrogen-like EDCs, has adverse effects on the reproductive success of male fathead minnows. Specifically, we examined gonadal tissues for evidence of intersex. Intersex is a condition in which the gonads of the fish contain both male and female characteristics, such as eggs or egg precursors within the testicular tissues. This condition has been found in male fish below sewage treatment plant outfalls in Great Britain. Male fathead minnows were exposed to 50 ng/L estradiol, the most potent and ubiquitous xenoestrogen, in a controlled laboratory setting for 21 days following published US EPA protocols. Testicles of the exposed fish were then removed, dehydrated, embedded in paraffin, sliced at 2-4  $\mu\text{m}$ , and stained using a standard H&E staining protocol. In addition, the gonadosomatic index, a measure of fish maturity, was recorded. The stained gonadal tissues were examined for evidence of intersex using standard microscopic examination techniques. This study hopes to determine whether exposure to estradiol at concentrations, as they have been found in British and North American effluents, causes intersex in male fathead minnows. In a subsequent study, the reproductive success of estradiol exposed male fathead minnows will be assessed to determine whether intersex is an indicator of adverse effects of xenoestrogens on reproductive health. This has bearing on fish population in and near sewage treatment plant discharges, which release large quantities of xenoestrogens.

**Student(s)**

Schweiger, Paul

**Sponsor(s)**

Schoenfuss, Heiko

**Synthesis of 2-Butoxyethanal by Swern Oxidation**

L24

3:00

Ballroom

2-butoxyethanol is a massively produced glycol ether that is extensively used in aerosols and cleaning agents intended for household use. It has been shown to cause hemolytic anemia as well as liver and kidney damage in rats. 2-butoxyethanal, a proposed product in the metabolism of 2-butoxyethanol, cannot be purchased from standard chemical companies because it is readily oxidized and difficult to store. For this reason, 2-butoxyethanal must be synthesized in the lab. The synthesis of 2-butoxyethanal was carried out by Swern oxidation of 2-butoxyethanol. Swern oxidation is a mild oxidizing method used to take primary alcohols to aldehydes. The reaction was conducted in the absence of water, in an argon environment, and at temperatures less than -50°C. Oxalyl chloride and dimethyl sulfoxide reacted to form an oxidizing intermediate. This intermediate reacts with 2-butoxyethanol to form the product. 2-butoxyethanal was isolated and purified by vacuum distillation. The product was confirmed and supported by nuclear magnetic resonance (NMR), infrared spectroscopy, and mass spectroscopy. The 2-butoxyethanal will be used in Dr. Sreerama's laboratory for metabolism experiments.

**Student(s)**

Lane, Jesse

**Sponsor(s)**Gregory, Daniel  
Sreerama, Lakshmaiah**Title and Abstract****Presentation ID****Time****Room****The Water Chemistry of Pleasant Lake (MN) and its**

L25

3:00

Ballroom

## **Affect on Lake Biota**

Nutrient cycles and seasonal alterations drastically impact lakes. This can change what types of organisms a lake can support. Phosphorus levels mainly rise due to agricultural runoff, while the majority of nitrogen levels increase through atmospheric deposition. Both in high quantities can cause a lake to become eutrophic, and cause the biota to consist largely of algal species. In low levels, organisms like phytoplankton will not be able to survive since they require many nutrients for energy. Silica can enter a lake through weathering of rocks or stirred up sediments. Mostly diatoms require silica; they use it for their tough outer shell. I researched the levels of these three elements, along with pH and dissolved oxygen, in Pleasant Lake (MN). The nitrogen, silica, phosphorus, and dissolved oxygen levels were all high. The pH level was only slightly alkaline. Pleasant Lake, according to my data, can support a variety of diverse organisms.

### **Student(s)**

Whittlinger, Amanda

### **Sponsor(s)**

Julius, Matthew

## **Aqueous Two-Phase Microextraction**

L26

3:00

Ballroom

The feasibility of aqueous two-phase microextraction for the determination of the amount of free (unbound) drug in a biological system is demonstrated for the first time. The free drug concentration is clinically significant, since the protein-bound fraction is generally unavailable for biological activity. The technique is expected to allow for direct measurement of a wide range of unbound drugs and environmental contaminants using the two-phase system of polyethylene glycol (PEG) solution and dextran solution, with microextraction of the free, unbound molecules in the small, top PEG layer. The protein and protein-bound drug remain in the bottom (dextran) layer. The microextraction technique results in minimal perturbation of the binding equilibria. Using the two-phase system in a solution mimicking blood serum, the appropriate amounts of PEG and dextran are found to be ~4% and ~22%, respectively.  $\beta$ -Estradiol is used as a model drug compound. The free concentration of  $\beta$ -Estradiol in the presence of bovine serum albumin (BSA) with a pH 7.4 phosphate buffer is determined using HPLC analysis of the upper phase by comparison with standards. The PEG/dextran two-phase microextraction system shows great potential as a new analytical technique to measure the concentration of free molecules in the presence of a binding protein.

### **Student(s)**

Zellmer, Jonathan

### **Sponsor(s)**

Jeannot, Michael

## **Research on Chronic Inebriate Program**

L27

3:00

Ballroom

The Mental Health Center administers the Stearns-Benton Community Care Plan Case Management and Relapse Prevention Program. Examination of fifty-five participants' Mental Health Center billing records spanning four years was completed, for eleven females and forty-four males, to evaluate the effectiveness of the program to reduce the cost incurred by participants who frequent the Detoxification Center and Mental Health Center. The program is effective in reducing costs incurred at the mentioned centers. The Correlated T-test revealed a calculated value that was significant at the .05, .01, and .005 levels. The costs incurred before participants entered the program were significantly higher than the costs incurred after participants were admitted to the program. There was a gender by treatment interaction. Female clients' costs were not significantly reduced by having been admitted to the program, while the male clients' costs were significantly reduced.

### **Student(s)**

Dillman, Krista

### **Sponsor(s)**

Hotz, John

<b>Title and Abstract</b>	<b>Presentation ID</b>	<b>Time</b>	<b>Room</b>
<b>Speech Characteristics that Contribute to the Diagnosis of Developmental Apraxia</b>  We surveyed speech-language pathologists (SLPs) to determine the speech characteristics that they associate with phonological disorders and those they associate with developmental apraxia of speech (DAS). Differential diagnosis of these two disorders remains imprecise because they share common speech characteristics. Differentiating a phonological disorder from developmental apraxia is crucial to provide optimal treatment of the latter disorder. While SLPs identified some speech characteristics with DAS and some with phonological disorders, no speech characteristics were found to be significantly associated with DAS. We discuss these findings and their implication for treatment of DAS.	L28	3:00	Ballroom
<b>Student(s)</b> Berg, Anne	<b>Sponsor(s)</b> Devers, Monica		
<b>Analysis of Snowflake Types and the Atmospheric Conditions that Produce Them</b>  A closer look at snowflake structure was observed for St. Cloud, MN, for the winter of 2001-2002. Soundings used for the given snow events were used to determine the different crystal habits and the environments that produced them. The soundings were used to give a three dimensional representation of upper air elements. Soundings were taken from Aberdeen (SD), Davenport (IA), Chanhassen (MN), Bismarck (ND), and International Falls (MN). All of these were from the National Weather Service at each respective city. During the 2001-2002 winter period in St. Cloud the number of snow events to observe were limited because of the mild winter. The poster presentation will focus on a period where snow fell for four consecutive days. However, this was not a continuous snow. The days observed had different snowflake observations. The days were January 13, 2002 thru January 17, 2002. The type of environment that these crystals formed in during this period will be discussed.	L29	3:00	Ballroom
<b>Student(s)</b> Liles, Justin	<b>Sponsor(s)</b> Hansen, Tony		
<b>The Effect of Vanadium Complexes on Class-2 Aldehyde Dehydrogenase</b>  Human aldehyde dehydrogenases (ALDHs) catalyze detoxification of certain widely used anticancer drugs, namely oxazaphosphorines (OAPs). Elevation in the levels of some of these enzymes in tumor cells leads to cellular insensitivity (resistance) to OAPs. Inhibition of aldehyde dehydrogenases in OAP resistant cells results in sensitization of resistant tumor cells to OAPs. Accordingly, our laboratory has been screening a variety of compounds as selective and potent inhibitors of ALDHs. Vanadium metal complexes have been shown to exhibit antidiabetic properties and are known to inhibit/activate several enzymes including dehydrogenases. Vanadium complexes are also known to exhibit antitumor activity. We report herein the interaction of vanadium oxoanions with human class-2 ALDH, ALDH2. Vanadium is known to exhibit different species in solutions and concentrations of these species is dependent on vanadium concentration as well as pH. Vanadium species (V-1, V-2 and V-4) in the solutions prepared were characterized using nuclear magnetic resonance (NMR) spectroscopy. ALDH2 required for this study was purified from a human cDNA clone over expressing this enzyme in E. coli. Effect of vanadium complexes on ALDH2 activity was determined spectrophotometrically using acetaldehyde as a substrate and NAD as a cofactor. To our surprise, at a vanadate concentration of 6.0 mM (vanadium complexes V-1, V-2 and V-4), ALDH2 seemed to be activated rather than inhibited. Further characterization of this reaction is underway.	L30	3:00	Ballroom
<b>Student(s)</b> Dechaine, Jennifer	<b>Sponsor(s)</b> Mahroof-Tahir, Mohammed Sreerama, Lakshmaiah		

Title and Abstract	Presentation ID	Time	Room
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<b>Gifted Women's Attitudes Towards the Family/Career Conflict</b>	L32	3:00	Ballroom
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In contemporary society, women are underrepresented in many high-paying occupations. Although there are undoubtedly societal constraints that contribute to this problem, there are also psychological factors that need to be understood in order to solve this problem. Of particular importance are the attitudes of women and girls who have high academic potential. To examine these issues, we conducted a survey study in order to compare attitudes of women in honors classes at St. Cloud State with attitudes of women who were not enrolled in honors classes. The 50-item survey contained items about attitudes towards family and career, and academic self-esteem. A total of 151 women completed the survey (79 non-honors students and 72 honors students). Various significant group differences emerged. For example, honors women were less likely to see themselves as satisfied full-time homemakers five years after graduation. In addition, honors women were more likely to attribute their successes to luck rather than ability. These interesting patterns highlight the importance of understanding the psychological qualities of an often overlooked group of women.

**Student(s)**

Matros, Nicole  
Salyer, Faye  
Streefland, Lisa

**Sponsor(s)**

Kling, Kristen  
Rockenstein, Zoa

<b>A Personality Profile of Michael Collins and Eamonn deValera</b>	L33	3:00	Ballroom
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This poster presents the results of an indirect assessment of the political personalities of Michael Collins, pro-treaty (Anglo-Irish) leader during the Irish Civil War, who was assassinated in 1922; and Eamonn de Valera, sole survivor of the 1916 Easter Rising, leader of the anti-treaty party, and later Taoisech of Ireland. Both profiles were done from the conceptual perspective of contemporary personality theorist Theodore Millon. Information concerning both Collins and de Valera was collected from biographical materials in the print media, and synthesized into a personality profile using the second edition of the Millon Inventory of Diagnostic Criteria, which yields 34 normal and maladaptive personality classifications congruent with Axis II of the DSM-IV. The personality profile yielded by the MIDC was analyzed on the basis of interpretive guidelines provided in the MIDC and Millon Index of Personality Styles manuals. Collins' primary personality patterns were found to be Dominant, Outgoing, and Dauntless whereas de Valera's primary personality patterns were found to be Conscientious, Dominant, and Retiring. The personality profiles shed new light on the old question of why two men who were so similar ideologically—both were Republicans with a passionate love of Ireland and a preference for a free state—could have played such divergent roles in the signing of the Anglo-Irish Treaty and split in the Irish State. The reason Collins led the majority, despite his pro-treaty position, is because to many people he was an attractive, dynamic, and charismatic leader. He was skilled in the art of social influence, and his charming, engaging personality style made people overlook his mistakes and shortcomings. On the contrary, de Valera, with his potentially self-defeating combination of controlling dominance and a moralistic conscience, may simply have been too inflexible to garner broad-based popular support.

**Student(s)**

Manthie, Jessica

**Sponsor(s)**

Immelman, Aubrey

<b>Title and Abstract</b>	<b>Presentation ID</b>	<b>Time</b>	<b>Room</b>
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<b>How Gender Influences the Interpretation of Facial Expressions</b>	L34	3:00	Ballroom
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Prior research has documented stereotypical beliefs that people have about emotional expression. In particular, females are believed to experience emotions such as shame, sadness, and fear more often than males. In this study, we hypothesized that these stereotypes would influence peoples' interpretations of facial expressions. To examine these issues, we showed a series of posed facial expressions to undergraduates and had them rate the intensity of the emotions that were expressed in the picture. Some of these emotional expressions were intentionally ambiguous. In other words, the picture contained elements of the facial expression of anger (e.g., furrowed brow) and other elements of the facial expression of sadness (e.g., frown). To test whether gender influenced how this ambiguous facial expression was interpreted, we manipulated the perceived gender of the person in the picture by altering the hairstyle. Thus, two versions of each ambiguous expression were created, one with female hair (i.e., long hair) and the other with male hair (i.e., short hair). Importantly the same facial expression was used in each picture -- only the hairstyle differed. Sixty-nine undergraduates (13 male) participated in the study. Consistent with expectations, when the ambiguous expression was presented with female hair, the students perceived more sadness than when the same expression was shown with male hair. Conversely, when the ambiguous expression was shown with male hair, the students perceived more anger than when the same expression was shown with female hair. Thus, we have demonstrated that stereotypes about emotional experiences influence judgments of ambiguous facial expressions. Because successful social interactions require knowledge of what the other person is feeling, gender-biased judgments of emotional expressions could be particularly troublesome.

**Student(s)**

Ervasti, Kat  
Geppert, Katie  
St. Clair, Michelle

**Sponsor(s)**

Kling, Kristen

<b>Title and Abstract</b>	<b>Presentation ID</b>	<b>Time</b>	<b>Room</b>
<b>Traditional Long Underwear versus Electrostatic Long Underwear</b>	L35	3:00	Ballroom

The purpose of the study was to compare the thermoregulatory capacity of two types of long underwear at resting and exercising in a 16°C environment. In two sessions five subjects either wore traditional 100% cotton long underwear or electrostatic long underwear made of synthetic fibers. In both sessions the subjects were placed in the 16°C environment for a period of 5 minutes (baseline) and then asked to exercise twice by stepping at a rate of 100 beats (25 steps) per minute for 10 minutes, there was a 25 minute break after both exercise periods. Skin temperature, clothing temperature and heart rate were recorded after the initial five-minute period, immediately following exercise, and at 12 and 25 minutes post exercise. The clothing temperature probes were placed on the outside of the clothing one inch superior to the skin probes to eliminate interference from the tape used to adhere the skin probe. The skin and clothing temperatures were recorded from three sites (chest: ziphoid process, back: midpoint between the inferior angle of the scapula and spinous process, and foot: base of the third metatarsal). The results can be summarized as follows: there was significantly less change in all temperatures for the session with the electrostatic long underwear than the session with the traditional long underwear, Table 1.

Table 1. Temperature Change from Baseline

	Foot	Back	Chest
Tradskin	-1.00±0.10	-1.44±0.15	-0.50±0.20
Elecskin	-0.20±0.10	-1.18±0.15	-1.00±0.20
Tradcl	-1.40±0.24	-0.90±0.33	-0.30±0.33
Elecccl	-0.90±0.24	-0.08±0.33	-1.20±0.33

It can be concluded that the electrostatic long underwear has a better capacity to thermoregulate body temperature; presumably by wicking moisture away from the skin and retaining heat when at rest or during low impact exercise.

<b>Student(s)</b>	<b>Sponsor(s)</b>
Riska, Karen	Seifert, John

<b>Cloning of a Truncated Class-3 Aldehyde Dehydrogenase</b>	L36	3:00	Ballroom
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Human aldehyde dehydrogenase (ALDHs) are “detoxifying” enzymes that oxidize various aliphatic and aromatic aldehydes to their corresponding acids. They also catalyze detoxification of certain widely used anticancer drugs, e.g. cyclophosphamide and its analogues. These anticancer drugs are collectively known as oxazphosphorines. Human adenocarcinoma cell line MCF-7/0 when cultured in the presence of hydroperoxycyclophosphamide for several months results in over expression of a truncated class-3 ALDH viz., ALDH3A1, and exhibits resistance to this drug. DNA hybridization analysis indicates that the MCF-7/0 and the MCF-7/OAP cell lines have the full length ALDH3A1 genes. We hypothesize that the truncated ALDH3A1 most likely originates from a posttranscriptional change leading to the deletion of the first exon in the mRNA coding for this enzyme. We have isolated this mRNA from the MCF-7/OAP cells and cloned it into a plasmid vector. Currently, we are in the process of sub-cloning the truncated cDNA into a bacterial expression system and express the recombinant protein. The ultimate aim is to compare the enzymatic properties of truncated ALDH3A1 with that of native ALDH3A1 purified from MCF-7/0 cells.

<b>Student(s)</b>	<b>Sponsor(s)</b>
Gilpin, Josh	Sreerama, Lakshmaiah

Title and Abstract	Presentation ID	Time	Room
<b>Photochemistry of Phenyl Isothiocyanate</b> <p>Phenyl isothiocyanate (PITC) is believed to have chemopreventative properties. PITC's photochemical properties are not well defined. We explored this aspect of the molecule using photolysis with ultraviolet light with a wavelength of 254nm. In our experiments, photolysis was carried out in two solutions simultaneously. The solutions were identical except for one variable of interest, allowing us to determine the effect of changing that variable. For example, we explored what effect the presence of cyclohexene and oxygen would have on photolysis. Samples were collected before and after photolysis. These samples were then analyzed using a gas chromatograph-mass spectrometer. The analysis indicated that phenylisocyanide was formed through the photolysis of PITC in all the conditions examined. PITC breakdown occurred more quickly when photolysis was carried out in a degassed solution and when cyclohexene was present. It was found that cyclohexene sulfide was formed in addition to the phenylisocyanide molecule when cyclohexene was present during photolysis, suggesting that cyclohexene binds to sulfur from the PITC molecules during photolysis.</p>	L37	3:00	Ballroom
<b>Student(s)</b> Fritz, Daniel	<b>Sponsor(s)</b> Gregory, Daniel		
<b>Inhibition/Activation of Human ALDH1A1 by Vanadium Complexes</b> <p>The main function of human aldehyde dehydrogenases is to detoxify aldehydes by converting them to corresponding acids. These enzymes also catalyze detoxification of certain widely used anticancer drugs, for example cyclophosphamide. Over-expression of these enzymes in tumor cells leads to resistance/insensitivity to cyclophosphamide. The process of resistance may be reversed by treating such tumor cells with aldehyde dehydrogenase inhibitors. For this reason, our laboratory has been developing selective and potent inhibitors of aldehyde dehydrogenases. Vanadium complexes, in addition to exhibiting anti-diabetic effects, also inhibit/activate many enzymes, including some dehydrogenases. Accordingly, we hypothesize that vanadium complexes will also inhibit and/or activate human aldehyde dehydrogenases. Herein we report interaction of vanadium with human class-1 aldehyde dehydrogenase (ALDH1A1). Vanadium is known to exist as different species in solution, and it is depending on vanadium concentration and pH of the solution. We have characterized the vanadium species V-1, V-2, and V-4 in solutions of pH 8 by using NMR spectroscopy. At low concentrations, V-1 is predominant, whereas the amount of V-4 increases with increase in vanadium concentration. V-2 is at a maximum in between the two. The nature of vanadium species was also determined under enzyme assay conditions. ALDH1A1 required for this study was purified from a human cDNA clone over expressing this enzyme in E. coli. The effect of vanadium species on ALDH1A1 and characterization of this reaction is underway.</p>	L38	3:00	Ballroom
<b>Student(s)</b> Scanlan, Michelle	<b>Sponsor(s)</b> Mahroof-Tahir, Mohammed Sreerama, Lakshmaiah		

<b>Title and Abstract</b>	<b>Presentation ID</b>	<b>Time</b>	<b>Room</b>
<b>Study of Sino-atrial Node by Ultrasound Imaging</b> <p>Sinoatrial node (SAN) is the pace maker of the heart and it's the origin of the cardiac conduction system. It is very important to the normal functioning of the heart. Though there is much research on its morphology and electrophysiology in vitro, there's little research on its movement and activation in vivo. A method has been developed to quantitatively analyze SAN based on intracardial Doppler Tissue Imaging (DTI). An ultrasound intracardial catheter with all DTI functions was used to image the SAN via the superior vena cava (SVC) in animal experiments. The color information in the Doppler tissue acceleration image sequences was then separated and mapped to quantitative acceleration values. Finally the time-mean acceleration curves were calculated to describe the movement of the SAN. The estimated time-acceleration curve of the SAN is remarkably related to the electrocardiograph curve. It implies that tissue movement of a SAN is highly correlated with its electrical activities. It is demonstrated that the method has great potential to characterize SANs, which may provide a new way to characterize cardiac activities. The animal in vivo study and data analysis was done in Chengdu, Sichuan, China, conducted or advised by Dr. Lixue Yin from Sichuan Provincial Hospital, Professor Changqiong Zheng from Sichuan University, and Dr. Yi Zheng from St. Cloud State University.</p>	L39	3:00	Ballroom
<b>Student(s)</b> Zhao, Shukui	<b>Sponsor(s)</b> Zheng, Yi		
<b>The Effects of Increasing Daily Lifestyle Activity</b> <p>Adequate amounts of physical activity have been shown to have positive effects on health and well – being. However 28% of American adults are sedentary. Physical inactivity has such negative effects that it has been identified as a risk factor for heart disease. Heart disease is the leading contributor of death in America and type II diabetes cases are on the rise, both of which can be managed in part by adequate amounts of moderate intensity physical activity. Many individuals have neither the time nor money for exercising at the gym, while others do not want to be confined to a strict regimen of activity. Yet there are health benefits to be gained by simply increasing one's physical activity. The aim of this project is to test the effects of using a pedometer to monitor and modify daily activity to improve aerobic function.</p>	L40	3:00	Ballroom
<b>Student(s)</b> Vrieze, Steve	<b>Sponsor(s)</b> Bacharach, David		
<b>Aspects of a February Warm Temperature Singularity</b> <p>The transition between seasons is an important time in the annual temperature cycle, particularly for identifying changes in the atmosphere. This study focuses on a February temperature anomaly referred to as the "Termination of Hard Winter," and how it changes throughout the last half century. Surface air temperatures are examined for evidence of this singularity in the North Central United States. The singularity shows up as an abrupt temperature increase, centered in Northern MN, which occurs around February 22 in the 24 year period 1975-1999, while occurring about a week earlier in the previous 24 year period. Analysis of the 10 days around the anomaly shows changes that suggest a tendency for changes in synoptic-scale phenomena.</p>	L41	3:00	Ballroom
<b>Student(s)</b> Scott, Daria	<b>Sponsor(s)</b> Hansen, Tony		

Title and Abstract	Presentation ID	Time	Room
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<b>Body Image Perceptions Among Black and White Female College Students</b>	L42	3:00	Ballroom
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Obesity in the United States of America has reached epidemic proportions in spite of society's emphasis on the "ideal" ultra thin female body shape. Many young women cannot easily attain this type of body shape and consequently have developed distorted body image perceptions. Distorted body image perceptions often lead to extreme unhealthy weight control behaviors such as self-induced vomiting, starvation, excessive exercise, binge-eating, restrictive eating, and can possibly lead to the development of the eating disorders anorexia nervosa, bulimia nervosa, or binge-eating disorder. Black women not only appear to be less affected than white women by the societal emphasis on thinness, they have a higher prevalence of obesity, 49% and 33% respectively. This study looked exclusively at the perceptual body images of female college students and their body compositions. Participants were females of either African or European descent, between 18 and 24 years of age, and full-time college students. Each subject completed the Eating Disorder Inventory (EDI-2) that assessed psychological symptoms relevant to the development and maintenance of eating disorders including drive for thinness, ineffectiveness, body dissatisfaction, interpersonal distrust, bulimia, perfectionism, maturity fear, interceptive awareness, impulse regulation, social insecurity, and asceticism. Each subject was then shown eighteen silhouettes of varying body sizes ranging from 1 (the thinnest) to 18 (the heaviest) and asked to identify the silhouette that best depicted her current body size, her ideal body size, and the healthiest looking body size. Finally, the primary investigator took skin fold measurements to determine the body compositions of all participants.

**Student(s)**

Devonish, Julia

**Sponsor(s)**

Bacharach, David

<b>Detoxification of 2-Butoxyethanol by Human ALDH1A1 and ALDH2</b>	L43	3:00	Ballroom
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About 700 million pounds of 2-butoxyethanol (BE) is manufactured and used in industrial and household products (concentration range ~2-25% BE) per year. NOISH estimates that 2.6 million people in over 200 occupations are exposed to BE every year. The ultimate metabolic product of BE, 2-butoxyacetic acid (BAA), is responsible for the toxicity of BE. Human toxicities associated with BE exposure could include delayed encephalopathy and metabolic acidosis. For these reasons, OSHA suggested limits of human exposure to BE is <25 ppm. The metabolism of BE is proposed to resemble ethanol metabolism. Accordingly, BE is first converted to 2-butoxyacetaldehyde (BAL) and then to BAA by alcohol dehydrogenases and aldehyde dehydrogenases, respectively. The conversion of aldehyde to the acid by ALDHs is expected to be the rate limiting step for the toxicity of BE. Human aldehyde dehydrogenases exhibit polymorphism. It is not known which of the allelic forms of ALDHs are responsible for the conversion of BAL to BAA. Accordingly we have initiated research to identify ALDHs that oxidize BAL to BAA. BAL required for these studies was synthesized via the Swern oxidation of BE. Human ALDHs, viz., ALDH1A1 and ALDH2, were purified from human cDNA clones over expressing these enzymes in E. Coli. Oxidation of BAL to BAA by ALDHs was determined spectrophotometrically. Each of the above ALDHs catalyze the oxidation of BAL to BAA. ALDH2, the mitochondrial ALDH primarily responsible for oxidation of ethanol derived acetaldehyde ( $K_m < 1 \mu M$ ) in humans, exhibits a  $K_m$  of  $\sim 40 \mu M$  for BAL. ALDH1A1 a cytosolic ALDH mainly responsible for oxidation of retinaldehyde exhibits a  $K_m$  of  $\sim 100 \mu M$  for BAL. The relative contribution of these enzymes to the detoxification of BE is now being determined.

**Student(s)**

Flicek, Theresa

Otsuki, Akira

Rao, Nishta

Weckwerth, Leon

**Sponsor(s)**

Gregory, Daniel

Sreerama, Lakshmaiah

<b>Title and Abstract</b>	<b>Presentation ID</b>	<b>Time</b>	<b>Room</b>
<b>Optimization of Micro-Satellite Primers for Paternal Testing of Fathead Minnows</b>	L44	3:00	Ballroom

In order to determine the reproductive health of fishes exposed to endocrine disrupting compounds (EDCs), we exposed male fathead minnows to 50 ng/L estradiol, a common EDC, and allowed these fish to compete directly with non-exposed males for females and spawning opportunities. Offspring of these competitive spawning interactions were analyzed for paternity to determine the reproductive success of males from both treatments. Using Polymerase Chain Reaction (PCR), a DNA-amplifying technique, it is possible to discern paternity through analysis of the nucleotide weight of specific loci present in the genome of the fathead minnow. This was accomplished using primers targeting polymorphic repetitive sequences of DNA known as microsatellites; the mutation-prone form of which makes these loci nucleotide weight specific within reproductive lineage. It is vital to the efficiency and applicability of this technique in research to optimize the use of primers. By optimizing the primers, it is possible to test the complete spectrum of microsatellite weights using as little as a single PCR lane. The process of optimization requires the quantification of all possible loci weights targeted by primers. This was achieved through PCR amplification of regions in several known lineages of fathead minnows. To quantify the weight and relativity of these amplifications, electrophoresis using acrylimide as a gel medium was performed. Primer optimization was accomplished when a primer sequence was discerned which provided viable stratification of products while maintaining the reliability needed for accurate paternal testing.

**Student(s)**

Wojchowski, Dylan

**Sponsor(s)**

Schoenfuss, Heiko

<b>Sanction Assigned to Perpetrators of Munchausen Syndrome by Proxy</b>	L45	3:00	Ballroom
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Munchausen Syndrome by Proxy is a very serious problem in the United States. One controversial aspect of this problem relates to which type of sanction perpetrators of Munchausen Syndrome should receive for their actions. Some believe that this is a mental disease and can only be fixed by seeking professional help. Others see Munchausen Syndrome as a form of child abuse in which the perpetrator should be incarcerated. This study examines the differences, if any, between psychology students and criminal justice students regarding their views of appropriate sanctions for Munchausen Syndrome by Proxy offenders. It is hypothesized that the psychology students will tend to favor treatment for offenders, while criminal justice students will tend to favor incarceration.

**Student(s)**

Hecker, Beth

**Sponsor(s)**

Bumgarner, Jeff

<b>Title and Abstract</b>	<b>Presentation ID</b>	<b>Time</b>	<b>Room</b>
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<b>Predictive Clinical Utility of the Modified Digit Symbol Test</b>	L46	3:00	Ballroom
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This study investigated assessment of memory in patients with Dementia. Performance on the Digit Symbol subtest [DS], a measure of incidental memory, was used to categorize individuals with and without Dementia. A control group of medical patients served as a comparison group. It was hypothesized that patients diagnosed with Dementia would score lower on the Digit Symbol subtest than the control group of medical patients, due to poorer incidental memory for symbol/digit pairs. Fifty-seven individuals referred to a psychologist were administered the DS, along with other mental status measures. Demographic and diagnostic information was also collected. ANOVA and correlational analyses were used to compare differences between test items and to measure their association with demographic variables. DS scores for pairs recalled, number copied and individual symbols recalled support the hypothesis that patients with a dementia diagnosis score lower than control medical patients. This replication and extension of previous work indicates an association between global cognitive impairment and various measures of memory. Further analysis will delineate other variables and measures that might also predict cognitive impairment, thus aiding differential diagnosis. Further research questions will be addressed in the final poster.

**Student(s)**

Collins, Michael

**Sponsor(s)**

Godging, Phillip

<b>Stabilization Stress Induced Expression of iNOS</b>	L47	3:00	Ballroom
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Nitric Oxide (NO) is synthesized by oxidative deamination of the amino acid L-arginine by nitric oxide synthase (NOS). NOS is present in most mammals as multiple isoforms, two of these isoforms are a calcium-dependent form that is synthesized constitutively (cNOS) and a calcium-independent form that is inducible (iNOS). Immobilization stress induces the production of iNOS specifically in tissues of the adrenal cortex of the brain and testis in most mammals. Immobilization stress also affects the levels of hormones, such as corticosterone and testosterone. The pathway by which these hormone levels are altered is unclear. Injection of the drug NAME (Nitro-L-arginine-methyl-ester), an inhibitor of NOS, prior to induction of stress has been shown to prevent alterations in hormone levels. In this study, rats were divided into three groups, control, stressed (immobilization for 4 h), and NAME injected prior to stress. The drug was administered through an osmotic pump for two weeks before induction of stress and an injection was also given daily during the last week. At the end of treatment animals were sacrificed, brain, liver, and testis were harvested and total RNA was isolated. Thus isolated total RNA was subjected to semi-quantitative RT-PCR analysis to determine the relative expression of cNOS and iNOS mRNA. RT-PCR analysis suggest, that iNOS is up regulated within groups that have been subjected to immobilization stress. Further, immobilization stress also resulted in an increase in corticosterone and a reduction in both plasma and testicular testosterone levels. These results were consistent in both brain and testis, while an undetectable difference could be seen in the liver.

**Student(s)**

Morris, Garrett

**Sponsor(s)**

Gazal, Oladele  
Sreerama, Lakshmaiah

Title and Abstract	Presentation ID	Time	Room
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### Exploring Factors that Enhance Creativity

L48

3:00

Ballroom

Each of us has been asked to be creative, whether on the job or while taking classes. In prior work, researchers have studied a number of factors that may influence creative performance. In this study, I looked at two different variables that might influence creativity during a lab task. The task involved generating a list of ideas that could be used to (1) improve the teaching of Introduction to Psychology, and (2) improve communication between students and administrators. Prior to this brainstorming session, some of the participants were exposed to a creative primer (i.e., a Dr. Seuss story book). It was hypothesized that participants who read the Dr. Seuss story would be more creative than participants who did not read the story. Another variable of interest was the type of evaluation expected by the participants. There were two types of evaluation: (1) self-assessment, where participants were told that they would rate the quality of their own ideas at the conclusion of the study, and (2) "expert" evaluation, where the participants were led to believe that their ideas would be evaluated by a faculty member. It was hypothesized that participants who were expecting to evaluate the quality of their own ideas would be more creative. By studying factors that may enhance creativity, researchers hope to help everyone realize their creative potential, and attempt to help us better understand how we could improve creativity.

#### Student(s)

Ballweber, Katie

#### Sponsor(s)

Kling, Kristen

### Cadmium-Induced Expression of Class-3 Aldehyde Dehydrogenase

L49

3:00

Ballroom

Cadmium indirectly causes oxidative stress on cells via lipid peroxidation of polyunsaturated fatty acids, forming highly reactive oxygen radicals. Oxygen radicals readily react with compounds in the body causing DNA adducts, formation of toxic aldehydes, and many other unfavorable products. Enzymes such as glutathione S-transferase (GST) and Class-3 aldehyde dehydrogenase (ALDH3A1) function in cells to counteract the effects of oxidative stress. Previous experiments have shown an increase in GST expression as a result of cadmium exposure. The genes encoding for GST and ALDH3A1 both contain an electrophile response element (EpRE) in their 5' upstream regions, leading to our hypothesis that cadmium could also induce the expression of ALDH3A1. To test this hypothesis, breast adenocarcinoma MCF-7 cells were grown in the presence of 0.2 $\mu$ M and 2.0 $\mu$ M CdCl<sub>2</sub>. After 24 hours of exposure to cadmium, the activity of ALDH3A1 in the cells was determined with a spectrophotometric assay. The results showed a 58% and a 100% increase in ALDH3A1 activity in the 0.2 $\mu$ M and 2.0 $\mu$ M cadmium-treated cells, respectively, compared to control cells. An immunoblot was then performed to visualize the levels of ALDH3A1 present in the cells. The results showed that both the 0.2 $\mu$ M and 2.0 $\mu$ M cadmium-treated cells had significantly higher levels of ALDH3A1 than the control cells, with the 2.0 $\mu$ M cadmium treated cells having the most dramatic increase.

#### Student(s)

Reeve, Bari

#### Sponsor(s)

Sreerama, Lakshmaiah

Title and Abstract	Presentation ID	Time	Room
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**Detoxification of 2-Butoxyethanol by Class-3 Aldehyde Dehydrogenase**

L50

3:00

Ballroom

Ethylene glycol ether 2-butoxyethanol (BE) is of interest to us because it is used in numerous household products. About 700 million pounds of it is manufactured and used every year, and its concentration in household products range from 2-25%. Approximately 2.6 million workers, belonging to 222 different occupations, are exposed to BE every year. BE toxicity is mainly due to its metabolite 2-butoxyacetic acid (BAA). Human exposure to BE results in delayed encephalopathy and metabolic acidosis. Exposure of animals to BE has been shown to result in hemolysis and hemoglobinuria. Because of this, OSHA suggested limit of human exposure to BE to <25ppm. Based upon animal studies, BE metabolism has appears to resemble ethanol metabolism. Accordingly, BE is first converted to 2-butoxyacetaldehyde (BAL) by alcohol dehydrogenases, and then to BAA by aldehyde dehydrogenases (ALDHs). Because BAA is more toxic than BE, the reaction catalyzed by ALDHs appears to be the rate determining step for the toxicity of BE. Human ALDHs exhibit polymorphisms, and the roles of these polymorphisms in converting BAL to BAA is not known. Accordingly, we have begun research to identify the ALDH isozymes responsible for the oxidation of BAL to BAA. Cytosolic class-3 ALDH, viz., ALDH3A1, was chosen as a candidate for this research. The BAL required for these studies was synthesized via Swern oxidation of BE and the human ALDH3A1 required for these studies was purified from human stomach mucosa. The resulting oxidation of BAL to BAA by ALDH3A1 was then determined through enzyme kinetic analysis, using BAL as a substrate. From these studies it was found that ALDH3A1 has a  $K_m$  of  $\sim 35 \mu M$  for BAL. The relative contribution of ALDH3A1 to detoxification of BE is being determined.

**Student(s)**

Lovold, Mandy  
Williams, Diana

**Sponsor(s)**

Gregory, Daniel  
Sreerama, Lakshmaiah

**Breast Cancer Resistance to UCN-01**

L51

3:00

Ballroom

UCN-01 (7-hydroxystaurosporine) is a natural product isolated from cultures of *Streptomyces* species N-126. It is an inhibitor of protein kinase A, protein kinase C isozymes and protein tyrosine kinases. UCN-01 also inappropriately activates cyclin-dependent kinase 1 and 2. The mechanism of action of UCN-01 is unlike most anticancer drugs and it targets the cellular transduction cascade and commits the affected cells to undergo apoptosis. UCN-01 is considered a good candidate for breast cancer therapies because of its mode of action and it targets only the rapidly dividing cells such as tumor cells. UCN-01 is being clinically evaluated for the treatment of solid tumors such as metastatic breast tumors. We have developed a human breast adenocarcinoma MCF-7 subline resistant to UCN-01 to further understand its mechanism of action. Like most other cell lines, the MCF-7 cells are heterogeneous and therefore they were subjected to cell number limiting dilution assay to generate a homogenous cell population. Thus selected cells were further subjected to sub-lethal concentrations of UCN-01 for several months to produce a sub-line resistant to UCN-01, designated as MCF-7/UCN-01. The resistant cells show  $\sim 8$  fold lower sensitivity to UCN-01 than the control MCF-7 cells. The present investigation will determine if the resistance in the MCF-7/UCN-01 cell line to UCN-01 continues over several generations. The resistant cell lines are currently being tested for cross sensitivity to other staurosporine anti-cancer drugs and collateral sensitivity to other commonly used anticancer drugs. Finally, differences in proteins expressed between MCF-7/UCN-01 and MCF-7 cells will be examined by 2-D electrophoresis which is expected to provide clues as to the mechanism of action of UCN-01.

**Student(s)**

Wendt, Patricia

**Sponsor(s)**

Sreerama, Lakshmaiah

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**Title and Abstract****Presentation ID****Time****Room**

**Wireless Communications Simulation Using IEEE-802.11b**

L52

3:00

Ballroom

The market for wireless devices including wireless local area networks (W-LAN) has driven technology to the point of realizing these systems for the home and office. The industry standard of IEEE802.11b, aka “Wi Fi”, is one such standard that facilitates this niche. Many vendors are using the open architecture specifications to manufacture devices that meet this standard. Our project will emulate portions of the physical layer, (PHY), and including both a transmitter and receiver for this Wi Fi system in a simplex mode. We will model the system using Matlab simulink processes and then transfer the working model to implementation software. We will be using advanced digital signal processing (DSP) technology and a radio system that uses the 2.4 GHz Industrial, Scientific, & Medical (ISM) band. The PHY will be implemented using direct sequence spread spectrum (DSSS) with a data rate of 5.5 Mbps and complementary code keying (CCK) at base band. The system model will be used in future communications courses to prepare students for this emerging technology. This project is ongoing with a completion date of early April.

**Student(s)**

Heinks, Daniel  
Sanguino, Jorge

**Sponsor(s)**

Yao, Aiping

**Bluetooth-Wireless Technology**

L53

3:00

Ballroom

Bluetooth is a proposed Radio Frequency Specification for short-range, point-to-multipoint voice and data transfer. It is based on a low-cost, low power, short-range radio link, and facilitates ad hoc connections for stationary and mobile communication environments. It is designed to operate at 2.4~2.4835 GHz ISM band, with symbol rate up to 1 Mbps. It is designed to work in conjunction with other third generation technologies. The purpose of the project includes the research on the bluetooth protocols layers, research on problems associated with bluetooth interference with other ISM band operated devices and bluetooth physical layer. A system model with Frequency hopping spread spectrum (FHSS) technique will be built by Matlab/simulink tool and then we will use DSP (Digital Signal Processing) boards to implement the baseband system, and use RF boards to transmit the signal. The final project will be a simple wireless communication system, which can be used for communication courses. This project is ongoing with a completion date of early April.

**Student(s)**

Dhital, Ashish  
Tan, Wei

**Sponsor(s)**

Yao, Aiping

**Smart Thermostat**

L54

3:00

Ballroom

The purpose of this project is to design and construct a programmable thermostat called “Smart Thermostat.” Smart Thermostat allows the user to control the room temperature from a personal computer (PC) at a remote location. The remote PC communicates with a local PC over the Internet or via a modem connection. The local PC communicates with the Smart Thermostat through radio frequency (RF) transceivers. Smart Thermostat can also be controlled manually using a keypad. Desired room temperatures can be programmed for different periods of the day. Actual room temperature and desired temperature are displayed on the Liquid Crystal Display (LCD), local PC and remote PC.

**Student(s)**

Gurung, Nir  
Zhang, Wei

**Sponsor(s)**

Glazos, Michael

<b>Title and Abstract</b>	<b>Presentation ID</b>	<b>Time</b>	<b>Room</b>
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<b>LEVICS-Light Emitting Vehicle Identification Communications System</b>	L55	3:00	Ballroom
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This project investigates the acquisition of motor vehicle information through an optical communication data link. The communication system consists of two units: a handheld unit and a LED taillight package mounted on the rear of the vehicle. The LEDs also serve as the taillights for the vehicle. The handheld unit contains keys allowing the user to request (from the taillight module) the Vehicle Identification Number, the registered owner's name, the registered owner's mailing address, and the status of the vehicle (how long the vehicle has been parked and whether the vehicle is stolen). In response, the taillight package transmits the requested vehicle information to the hand-held unit by modulating the LEDs. The hand-held unit is equipped with additional memory allowing the device to store the acquired vehicle information. This information can be uploaded to a PC for further processing.

**Student(s)**

Roehler, Matt  
Rudiger, Megan  
Sprister, Dane

**Sponsor(s)**

Glazos, Michael

<b>Portable Language Translator</b>	L56	3:00	Ballroom
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The concept of a simple device to help conquer the language barrier is a requirement for global economics. Business people around the world need an effective way to communicate with people from other countries because they don't speak the same language. Our project, the portable translator, will meet that need. The portable translator unit converts a voice signal in the base language to a voice signal in the target language. The Voice Recognition module, Voice Extreme from Sensory, will convert the input signal into an 8-bit binary number, which is sent to the PIC 16F877 Microcontroller. This microcontroller will then use an algorithm to recognize that signal as a specific word in its library, and output that word, using text, to a Liquid Crystal Display, or LCD. This allows the user to recognize the word and decide if that is the word that he or she spoke. If it is, a send switch allows him or her to send the data to the Voice Synthesis module from Winbond, which will then speak the translated word. This unit is handheld and uses a 9.6 NiCad battery for power. It also comes complete with its own power supply and charger unit for full stand-alone capabilities.

**Student(s)**

Cornett, Alan  
Heying, Cindi  
Osen, Kevin

**Sponsor(s)**

George, Peter

Title and Abstract	Presentation ID	Time	Room
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<b>Wireless Intelligent Smoke Detector Networking</b>	L57	3:00	Ballroom
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Wireless Intelligent Smoke Detector Networking Smoke Detectors play an important role in our lives by serving most of our household applications. The general purpose of our project is to develop a more reliable and efficient networking system of smoke detectors, which will enable the members of a household to reach their desired destination. The smoke detectors we use today only help us by sensing the smoke in the room and setting off an alarm. Its safeties and effectiveness are still not fully developed. In our design we implemented advanced smoke detectors in different phases and in different apartments of a large building that have connection to each other and interact in emergency situations. For example, if one apartment is in smoke, the other apartments of that building will receive a warning message in LCD display. The smoke alarm will also sound for the apartment causing the smoke. In phase two, the added monitoring system adds to the safety of the home. For this purpose, we will interface a PC with a graphics user's interface and also a telephone interfacing. A GUI will inform the user (security guard) about the smoke warning, floor and apartment number of the building and also provide information if any of the detectors were tampered with. The purpose of telephone interfacing is to make sure that if nobody is home to remove the smoke, it will dial 911 automatically.

**Student(s)**

Ahmed, Mirja J.  
Chowdhury, Mohammed T.  
Materu, Arnold

**Sponsor(s)**

Yao, Aiping

<b>Bobsled with Calculus</b>	L58	3:00	Ballroom
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With the presence of the 2002 Winter Olympics, we wanted to see how physics and math play a role in an Olympic sport. With all of the curves and sharp drops, we thought the bobsled event would make an interesting candidate for mathematical investigation. For our analysis of the bobsled race we investigated how different forces, such as gravity and friction, affect the speed and distance traveled by the sled. To get an idea of how these forces affect the sled during the race, we examined three different cases. In the first case, we considered what would happen if there were no frictional forces doing work on the bobsled. In the second case, we only considered the friction between the steel blades of the bobsled and the ice on the deceleration track, and ignored the friction during the race. In the third case, we took all of the forces acting on the bobsled into account to get the most accurate picture. In the end, we compared the results of the three cases to see just how much the forces affect the bobsled.

**Student(s)**

Holt, Laura  
Kelley, Sam

**Sponsor(s)**

Chen, Jeff

Title and Abstract	Presentation ID	Time	Room
<b>Charmonium Dissociation in Hadronic Matter</b> <p>High energy nuclear collisions create a short lived, heated and compressed system of subatomic particles called mesons. One such meson, the <math>J/\psi</math>, is a rare and fairly massive object consisting of a charm quark plus its antiquark. When <math>J/\psi</math> collides with lighter particles, it can suffer breakup and lose its identity in favor of other, less rare and lighter particles. Modeling the rate at which these conversions take place is critical in understanding the overall production of <math>J/\psi</math>. Nuclear collision events which have a decreased production of <math>J/\psi</math> are expected to involve, at least for some brief moments, the presence of a plasma of deconfined quarks and gluons. The plasma represents a new phase of matter in the sense that it has never before been identified in the laboratory. We predict the likelihood of <math>J/\psi</math> survival using relativistic kinetic theory, complete with dynamical details and with energy, momentum, and other appropriate conservation laws. The survival probability calculation can be compared with experimental yields. Breakup scattering rates, system cooling rates, and particle distributions are among the parameters of our model that we vary in attempts to better understand the experiments.</p>	L59	3:00	Ballroom
<b>Student(s)</b> Blount, Theron	<b>Sponsor(s)</b> Haglin, Kevin		
<b>Effects of Broad Hadron Distribution on Low Mass Dilepton Signals</b> <p>In high-energy nucleus-nucleus central collisions, a large fraction of the kinetic energy is converted into hadronic matter produced in the vicinity of the center of mass of the colliding system. The rho meson is a particularly important constituent of this matter due to its direct dilepton decay channel. Dileptons are ideal probes for studying the in-medium properties of hadrons since they probe the entire volume of the system and carry information on the thermodynamical state of the medium at the moment of their production. Therefore, the invariant mass distribution of dileptons is crucial to understanding the in-medium spectral function of the vector mesons. This model seeks to improve upon existing models by describing production of dileptons with the width of the rho meson and the participating pions broadened to include in-medium decay and collision. The impact of radial flow on the production of dileptons will also be addressed.</p>	L60	3:00	Ballroom
<b>Student(s)</b> Peters, Judith	<b>Sponsor(s)</b> Haglin, Kevin		
<b>Diversity Issues in the Elementary Classroom</b> <p>Research for this project focuses on diversity issues in the elementary school setting. A review of the literature reveals that children's voices are noticeably absent. The objective of this project was to examine how children feel about diversity issues and to specifically examine how children of color feel about their elementary school experience. Surveys were distributed to fifth and sixth graders at several elementary schools in District 742. The instrument addressed many issues including racism, sexism, heterosexism, and looksism by asking a variety of questions in which the students could choose from several responses. Preliminary findings indicated that students do not feel that they are treated differently by teachers or classmates because of physical differences in appearance or ability. However, students of color often indicated that they do not learn about people that look like them nor do they see people that look like them in the books they study. These results are significant because they may indicate that schools need to implement a multi-cultural curriculum in order to meet the needs of an increasingly diverse student population.</p>	L61	3:00	Ballroom
<b>Student(s)</b> Ebnet, Heather	<b>Sponsor(s)</b> Ore, Tracy		

Title and Abstract	Presentation ID	Time	Room
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<b>CDMA2000 and Its Implementation Using VHDL/FPGA</b>	L62	3:00	Ballroom
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CDMA2000 is the 3rd Generation wireless communication technology for cellular communication. It is proposed to meet growing demands for wideband voice and data communication. It is an advanced version of Code Division Multiple Access (CDMA) technology, which has been used in North America as the 2G standard IS-95. In this project, a system to implement CDMA2000 standard is developed. The system consists of multiple transceivers that are connected via a wireless link at 2.4 GHz. The simulation of the system is successfully done using the Simulink of the Matlab. The hardware implementation of the base band coding is done using the newest Altera's programmable IC chip Apex1500, which allows complex mathematic operations. Low cost and high performance 2.4G Hz RF boards are used to interface with the baseband DSP boards for the RF transmission and receiving. This work shows that the CDMA2000 provides a general guideline for the new 3G communication but developers still need to design their own systems. This work also shows that the complicated protocol of CDMA can be reliably implemented with low cost and advanced electronic products.

**Student(s)**

Sanguino, Jorge

**Sponsor(s)**

Zheng, Yi

<b>Wireless Energy Management System</b>	L63	3:00	Ballroom
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An electric bill is one of the few bills paid each month that the consumer cannot verify. The power used by the refrigerator, washer and dryer, or computer is not broken out on the bill. Our senior design project is to design a Wireless Energy Management System that can assist the consumer in measuring the power used by each appliance. The main components of our design are a wattmeter, an Atmel microcontroller, a transmitter and receiver, and a computer interface. The wattmeter uses an optoisolator to multiply the resistive load current and the voltage drawn by the appliance. The instantaneous power reading is analog so an analog to digital converter is used to convert the power reading to a calibration voltage. The Atmel microcontroller calculates the power based on this voltage and sends it to the transmitter. The transmitter sends the measured power to the receiver at a frequency between 903.37 MHz (megahertz) to 921.37 MHz. The receiver relays the information via a serial interface to a computer using a graphical user interface (GUI). The GUI was written in Microsoft Visual Basic 5.0. It has a menu to setup the appliances that are being monitored and a menu to retrieve the power information. The power information can be obtained on a hourly or minute by minute basis and allows approximate verification of the electric billing when used with major appliances. The transmitting units consist of small wall plug-in boxes that provide an electrical interface between the outlet and the appliance. The receiving unit is a small box that sets on a desk with a serial connection to the computer.

**Student(s)**

Boerner, Debi  
Rosenberg, Julie  
Weber, Steve

**Sponsor(s)**

George, Peter

<b>Title and Abstract</b>	<b>Presentation ID</b>	<b>Time</b>	<b>Room</b>
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<b>Mobile GPS Mapper</b>	L64	3:00	Ballroom
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The project is a mobile mapping and tracking system using a Global Positioning System (GPS). This system uses a personal computer (PC) with a graphical user interface (GUI) to display the position of the current unit, store waypoints and paths of the current unit, and upload known paths to a handheld unit. This GUI was designed using Visual Basic programming language. The GPS unit receives the information from up to 12 satellites, and selected informational sentences are then sent to a microcontroller (MCU) for further processing. The extracted information is then displayed on a liquid crystal display (LCD) (latitude and longitude positions, speed and heading), and is also sent to the PC via RF transceivers and RS-232 serial communication. The GUI will store and plot using these coordinates. On the GPS unit, there are user controls to select the mode of operation. There is also a series of light emitting diodes (LEDs) on the GPS unit used for direction finding. The LEDs will be designed to indicate which direction to go in order to find a specified location. This project will be very useful for intense search and rescue operations, as well as for safety for hunters and fishermen.

**Student(s)**

Carlson, Jacob  
Chowdhury, Mizanur  
Kilian, Tony

**Sponsor(s)**

Hou, Ling

<b>Smart Weighing Machine</b>	L65	3:00	Ballroom
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This project is called "Smart Weighing Machine." The main purpose of this device is to obtain users' weights and to store data in a microcontroller chip. The stored data can be retrieved and be compared with present weight. The main difference as compared with common weighing scale is that the system is voice activated. Communication with users is to display results on LCD, and response is through voice synthesizer. The Smart Weighing Machine is a device that stores data for users to have easy access to their weight history and health records through voice recognition.

**Student(s)**

Lee, Peter  
Lieng, Shee Jack  
Yap, Pak Ching

**Sponsor(s)**

Heneghan, J. Michael

<b>Title and Abstract</b>	<b>Presentation ID</b>	<b>Time</b>	<b>Room</b>
<b>Effect of Explicit Grammar Instruction on Second Language Learners' Accuracy</b>	M1	5:00	South Voyageurs

Inductive and non-interventionist approaches to grammar teaching underlie the communicative classroom practices, in which meaning is paramount. That is, learners are believed to acquire formal features of language from communicative classroom input. However, recent studies on second language learners' speech production exhibit a relatively low grammar accuracy, despite the learners' extensive exposure to target-language input. These studies imply a positive correlation between the lack of the explicit grammar instruction and the low-level of grammar development. Other research offers evidence that explicit grammar instruction directed at specific features improves learners' accuracy. My presentation reports on the effects of the explicit instruction of selected grammatical constructions on grammatical accuracy as measured by grammar tests and composition tasks. Data for the project were collected in a low-intermediate ESL class at the SCSU Intensive English Center (IEC). The ABAB research model was adopted, which involved instruction and no-instruction phases and a series of five tests for each of the instructed forms. The results demonstrate positive effects of explicit instruction, which are particularly visible in the grammar test results. The composition profiles, however, were less indicative of progress. The different characteristics of the grammar and composition test results may raise questions whether the two testing tools activate the recently learned explicit knowledge (i.e., competence) in a similar fashion, or whether the gap implies the need for more practice. The answers to these questions may contribute to a development of explicit instruction better suited to obtaining better instructional outcomes. It would also be interesting to observe if similar patterns of language production occur at higher levels of language proficiency.

**Student(s)**

Munajat, Rama

**Sponsor(s)**

Teutsch-Dwyer, Marya

<b>Connector Assembly Equipment Design</b>	M2	5:20	South Voyageurs
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Precision automated tooling is needed to manufacture a telephone connector. The connector is an assembled part that contains four injection-molded parts and two phosphor bronze stampings. To reduce the cost of manufacturing, the tooling will be used in a pre-existing flexible automation cell. The automation cell consists of a rotary dial indexer in which parts are loaded onto and transferred from workstation to workstation. A special tool resides at each workstation and is used to complete a specific task in the manufacturing process of the connector. Parts are loaded onto the rotary dial indexer with a high-speed robot. The robot is equipped with a tool changer, which allows the robot end-effector to be changed for the manufacturing of different products. The scope of this project is to design a portion of the tooling, including the robot end-effector, needed to manufacture this telephone connector. This includes mechanical, electrical, and software designs for this tooling. This presentation will discuss the methods of manufacturing used in these designs and address technical concerns that were encountered during the design process.

**Student(s)**

Smith, Jason

**Sponsor(s)**

Bekkala, Andrew

<b>Title and Abstract</b>	<b>Presentation ID</b>	<b>Time</b>	<b>Room</b>
<p><b>Family Literacy Programs: Creating Success for Adults and Children</b></p> <p>The research I did was undertaken for my enlightenment on the types of Family Literacy Programs available in the Central Minnesota area. It also was intended to explore the relationship between parents' attitudes about reading and the effect such attitudes have on the children in the family. The importance of being able to read and the benefits to the child, family, school, and community were reviewed in this paper. Descriptions of the Adult and Family Literacy Programs utilized in Central Minnesota were presented. Also included was the description of a Hyperstudio survey presented to parents of children K-2, both those that read the survey and those that wanted to have the survey read to them. In addition the paper discussed methods of identifying low-level reading adults and the difficulty of approaching them with information about the relationship between improved reading skills and enhancement of other aspects of life.</p> <p><b>Student(s)</b> Clements, Janet</p> <p><b>Sponsor(s)</b> Rodgers, Judith</p>	M3	5:40	South Voyageurs
<p><b>Pidginization/Creolization Hypothesis</b></p> <p>Bahamians speak two languages: Bahamian Standard English and a Bahamian dialect referred to by linguists as Bahamian Creole. Bahamian Standard English is similar to the English varieties spoken in Canada, England and Australia. Bahamian Creole arose from the collision of languages and cultures under the social conditions of slavery. A pidgin arises to fulfill certain restricted communication among people who have no common language. Creole arises when a pidgin becomes the mother tongue of a speech community, hence pidginization and creolization respectively. This study will give a historical account of Bahamian Creole along with a comparative analysis of a few Bahamian Creole lexical items. The focus is to see to which extent the history of Bahamian Creole validates or invalidates the Pidginization/Creolization hypothesis.</p> <p><b>Student(s)</b> Russell, Sandra</p> <p><b>Sponsor(s)</b> Koffi, Ettien</p>	M4	6:00	South Voyageurs
<p><b>Communication Strategies in Second Language Speakers</b></p> <p>In this project, we observed and analyzed communication strategies in Second Language Learner's speech. We hypothesized that second language speakers of English utilize a certain form to carry out various functions of communication strategies. In her research, Mari analyzed an Indonesian speaker's usage of "a" and "an." Shanna analyzed a multilingual (Peur, Bambara, Arabic, French, and English) African speaker's usage of "you know." We collected the data through interview methods, and transcribed the interview. We analyzed the data through taxonomy of communication strategies such as message abandonment, approximation, and topic avoidance. Also, we examined the grammatical and pragmatic functions of the usage of "a," "an" and "you know" in the second language learner's speech. The results suggested that the Indonesian speaker employed "a" and "an" often to buy time or as a substitute for "I," whereas the Malian frequent usage of "you know" encompassed various functions such as topic avoidance and content buffer. We will end the presentation by discussing the implications the present research results may have for teaching communication strategies in ESL and EFL contexts.</p> <p><b>Student(s)</b> Kudo, Mari McCann, Shanna</p> <p><b>Sponsor(s)</b> Teutsch-Dwyer, Marya</p>	M5	6:20	South Voyageurs

Title and Abstract	Presentation ID	Time	Room
<b>Experimental Film</b> <p>Experimental Film is about no limits, no boundaries, and exploring new ways to express feelings and tell stories. The objective in these films is to show people a different way of seeing, a new way of looking at everyday life and images that appear but are not normally looked at or taken into consideration. One of the films is everyday images made into a context that is dream-like, and narrated in a way that is not standard Hollywood style. The other is a recorded watercolor painting in progress. This is trying to recreate a vision or hallucination or dream without using standard computer imaging or graphics. These films were edited in the Kiehl Art building, and made while in Ron Gregg's Introduction to Experimental Film course here at SCSU. Music is by a friend who composes his own experimental electronic music, and is currently going to graduate school in Eugene, Oregon for Electronic Music Composition. The main idea behind these films is that all the footage and putting the music to it was spontaneous. If I saw an image in the day that caught my eye and was stimulating, I recorded it. The music was put to the film spontaneously, it was not really planned out. What I found was that this is the best way to do this kind of project. Experimenting is the best medicine. It can lead to new things, new ideas, new ways of thinking and seeing.</p>	N1	5:00	Lady's Slipper
<b>Student(s)</b> Myers, Kevin	<b>Sponsor(s)</b> Gregg, Ron		
<b>Vaughan Williams, <i>Oboe Concerto</i></b> <p>Ralph Vaughan Williams is well known for pieces such as <i>Fantasia on Greensleeves</i> and <i>The Lark Ascending</i>, but all too few people know about his <i>Oboe Concerto</i>. Vaughan Williams' compositional style is seemingly simple, calm, playful and reflective in construction. This oboe concerto is the exception. Though it has the same sense of folk song, it isn't of the same genre of his other popular works. In this concerto, he borrows from antiquity, taking Renaissance melodic form and harmonic flow and voicing them in a contemporary instrument, combining the old and new. To inspire a feeling of folk music, he put in a modal structure instead of the diatonic one that we expect. This creates a piece that is charming to the listener yet brings some unique challenges to the musician. Because of this blending, analysis of the form is necessary to help achieve a fine performance.</p>	N2	5:20	Lady's Slipper
<b>Student(s)</b> Haake, Erin	<b>Sponsor(s)</b> Wells, Tim		
<b><i>Citizen's Arrest</i></b> <p><i>Citizen's Arrest</i> is an oral performance of personal poetry. Despite my four years of pursuing an English degree, it is the work contained in this presentation that is the culmination of my studies (of my life, no less). It represents a speck of human experience, barely scratching the surface of my own experience and nowhere near encapsulating even a significant amount of overall human experience. Nevertheless, it is all important in one way or another, whether on a small, personal scale or a broader, more inclusive scale. Much of my work arises as an attempt to say things that aren't being said (or more precisely, things that aren't being said enough or loudly enough). As is true of most personal poetry, a number of my pieces deal with my struggle with my own demons, and in this struggle I sometimes say things that people don't want to hear or that others are uncomfortable with. While this is not my prime intention when I write, this sort of reaction shows that it has affected people in some way. If my work makes people think, even if they don't agree with me, then I know I've created something meaningful. The purpose of this presentation is to share that meaning, to bring together what my life and college career have led me to, and to hopefully give people something else to think about as they go through life day to day.</p>	N3	5:40	Lady's Slipper
<b>Student(s)</b> Anthony, Liz	<b>Sponsor(s)</b> Gregg, Ron		

<b>Title and Abstract</b>	<b>Presentation ID</b>	<b>Time</b>	<b>Room</b>
<b>550 Piece Visual</b> <p>This project explores the technique of experimental filmmaking through camera position, lighting, sound and editing. My goal was to make a piece that is visually stimulating with music. I used a handheld VHS camera and the computer program Winamp to synchronize the first set of graphical images to music. Then I used live video footage and strobe lighting with music to change the visual mood for the second segment. I feel the piece successfully simulates the expanding world of experimental filmmaking.</p> <p><b>Student(s)</b> Kampa, Wade</p> <p><b>Sponsor(s)</b> Gregg, Ron</p>	N4	6:00	Lady's Slipper
<b>Gender Equity Issues in Computer Courses at Wayzata High School</b> <p>In today's culture the computer is no longer a secluded machine. Information technology is transforming every occupational field and few people are unaffected by it. In education the question is how can computers be used to enhance teaching and learning, ideally in ways that promote the involvement by girls and other groups currently underrepresented in many computer related endeavors. The objectives of the project were to identify factors interfering with female enrollment in computer programs and create a plan to recruit females into technology courses at the high school level. After identifying the factors in a review of literature, a survey was conducted to identify specific factors at Wayzata High School. The survey indicated that girls are somewhat "turned off" by the computer culture and have a negative image of someone who knows a lot about computers. They also attach a "secretarial" label to women who are proficient users of computers. The survey also indicated that girls have been ill informed about the course offerings at the high school, and they do not understand how certain technology classes may prepare them for the future. From the results of the research and survey a recruitment process will be implemented at Wayzata High School. This process will include creating videos of present students to show at 8th grade curriculum night, direct mailing to parents about the courses offered at the high school, and a mentoring program, where students are matched with a woman working in a high-tech industry. High-tech includes computer related fields such as networking, computer technician, programming, system design, software development and web page design.</p> <p><b>Student(s)</b> Christopherson, Bettina</p> <p><b>Sponsor(s)</b> Rodgers, Judith</p>	O1	5:00	Watab
<b>Community-Building in Women's Summer League Ice Hockey</b> <p>This paper explores the influence of place on the community-building practices of a women's ice hockey team. Data was gathered through ethnographic fieldwork conducted with an elite women's league during the summer of 2001. I found that the change room, where players' shared similar activities, built a community framework and helped the players to achieve their summer hockey league objectives: to have fun and become better players of the sport.</p> <p><b>Student(s)</b> Garn, Barbara</p> <p><b>Sponsor(s)</b> Schultz, Emily</p>	O2	5:20	Watab

<b>Title and Abstract</b>	<b>Presentation ID</b>	<b>Time</b>	<b>Room</b>
<b>Barbie Isn't Real, I Am</b> <p>Who doesn't worry about food? Almost all of us do at times. But, anyone who has an eating disorder lives in fear of food and of being fat. Often unable to control their food intake, they hide their eating habits so no one finds out. Secret starvation, binge eating, and/or purging are all common behaviors among those who suffer from eating disorders, along with the anxiety, depression, shame and/or guilt that accompany most disorders. Although there are several different kinds of eating disorders, this workshop concentrates mainly on anorexia nervosa and bulimia. While treatments and cures are being found for other disorders and diseases, these two disorders have reached epidemic proportions in recent years. While eating disorders may begin with preoccupations with food and weight, they are usually about much more than that. People with eating disorders often use food and control of food in an attempt to compensate for feelings and emotions.</p> <p><b>Student(s)</b> Bauer, Michelle</p> <p><b>Sponsor(s)</b> Samuel, Patricia</p>	O3	5:40	Watab
<b>Determining the Relationship between Relative Humidity and Aerosol Sulfate: A Field Study</b> <p>Air quality is and will continue to be an important health concern and environmental issue. Some of the contributing factors to air quality that require more investigation are aerosols and how the interaction of water vapor with aerosols can affect air quality. Previous studies have shown that the presence of water vapor in the air facilitates an increase in aerosol size and mass for certain hygroscopic aerosols. When the sizes of the aerosols lie approximately in the range of visible light (<math>4\text{ }\mu\text{m}</math> - <math>7\text{ }\mu\text{m}</math>), light is scattered by Mie scattering, which scatters light more efficiently than Geometric or Rayleigh scattering, and thus reduces visibility. The goal of this study is to examine the relationship of aerosol sulfate with ambient water vapor in a temperate region of North America and assess how that relationship affects air quality. The relationship between water vapor and relative humidity was evaluated by computing the correlation coefficient of the two quantities, using data collected June 2001 through August 2001 as part of the Program for Research on Oxidants: Photochemistry, Emissions, and Transport (PROPHET) Summer 2001 Study.</p> <p><b>Student(s)</b> Kaufeld, Wendilyn</p> <p><b>Sponsor(s)</b> Nastrom, Gregory</p>	P1	5:00	Mississippi
<b>Theoretical Investigation of Sulfinyl Radicals</b> <p>The dimerization of sulfinyl radicals and the vicinal oxidation of disulfides produce the thiosulfonate. Three initial dimers are plausible for the dimerization of sulfinyl radicals, which may be described as S-S, S-O, and O-O dimerization. On energetic grounds, O-O dimerization is not relevant. Electrostatic interactions would favor S-O dimerization, and chemical oxidation of disulfides provides the S-S dimer. The calculated potential energy surfaces (P.E.S.) connecting the S-S dimer to the other isomers will be discussed. A concerted transformation to the thiosulfonate will be compared with the step-wise reaction in order to establish which mechanism is favored. Optimized structures for all important compounds including the transition states, will be presented. The intrinsic reaction coordinate (IRC), which connects the transition state with the starting material and the products, will be presented. Single point energies at the MRMP2 level of theory for all important structures will also be reported.</p> <p><b>Student(s)</b> Spychala, Alicia</p> <p><b>Sponsor(s)</b> Gregory, Daniel</p>	P2	5:20	Mississippi

Title and Abstract	Presentation ID	Time	Room
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**Photochemistry of Benzylisothiocyanate and Benzylthiocyanate**

P3

5:40

Mississippi

Organic isothiocyanates are found naturally in cruciferous vegetables and have been shown to possess possible anti-carcinogenic effects. This project focused on the photochemistry of benzylisothiocyanate and its isomer benzylthiocyanate. Photolysis of benzylisothiocyanate at 254 nm has been predominated by loss of the sulfur atom. This reaction is greatly accelerated in the presence of cyclohexene, which traps the sulfur atom and forms an episulfide. The main product of photolysis for benzylisothiocyanate is benzylisocyanide when solutions are degassed and benzylformamide when oxygen is present. Benzylthiocyanate photolysis proceeds by isomerization to benzylisothiocyanate as the main reaction pathway. This reaction is accelerated by increasing solvent polarity. Triplet sensitization experiments with benzylphenone were done for both benzylthiocyanate and benzylisothiocyanate. Reaction rates were not increased with the triplet sensitizer, suggesting that these molecules do not react through the triplet state. Photolysis of benzylisothiocyanate and benzylthiocyanate at longer wavelengths and quantum yields of these various photochemical reactions will also be discussed though work on this is not complete at the present time.

**Student(s)**

Rafferty, Jake

**Sponsor(s)**

Gregory, Daniel

**The Effects of 12 Weeks of Cycling on Aerobic Capacity and Body Composition**

P4

6:00

Mississippi

The purpose of this study was to determine if 12 weeks of group cycling would positively affect body composition (BC) and aerobic capacity (V02) in sedentary adult females. Methods: 22 females between 25-45 years of age all with BC>25%, cycled three times a week for 30 minutes at the same heart rate (HR) intensities. All were required to wear a HR monitor for each training session. The training protocol began at 70% of the subject's max HR and increased in intensity by adding bouts of a higher intensity within the 30 minute protocol. Measurements of V02 and BC were taken before and after 12 weeks of training. An incremental V02max test was performed on cycle ergometer to determine a workload corresponding to 70% the subject's V02max. Hydrostatic weighing was used to determine BC. T-test results from 13 of the 22 subjects completed, reveal significant differences between pre and post tests. Completed statistical analysis will be presented upon completion of the training study.

**Student(s)**

Haukos, Chris

**Sponsor(s)**

Bacharach, David

<b>Title and Abstract</b>	<b>Presentation ID</b>	<b>Time</b>	<b>Room</b>
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<b>Applications of Boolean Satisfiability for Cryptography</b>	Q1	5:00	North Voyageurs
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Finding a method of protecting private information has been a common and difficult problem for many years. In recent years, through the help of computers, private information has been kept secure by using advanced cryptosystems to encode the data that may vary in security level. Two famous such cryptosystems are RSA and El Gamal, each believed to be secure by most mathematicians. These methods are rooted in the theory of NP-complete problems. NP-complete problems are useful in cryptography because they act somewhat like a one-way street. That is, it is easy to go in one direction, but not in the other. An example of this is factoring, which is an NP-complete problem. It is easy to multiply two large prime numbers together, but hard to determine the factors of a number that is the product of two large primes. The security of the RSA cryptosystem rests on the difficulty of factoring, and the security of the El Gamal cryptosystem depends on another NP-complete problem, known as the discrete logarithm problem. Even the most efficient and fast computers would not be able to solve NP-complete problems in a reasonable amount of time. Our research has been focused on an attempt to design and implement a new cryptosystem based on another widely known NP-complete problem called Boolean Satisfiability. The main idea behind this problem, in terms of NP-completeness, is that it is easy to come up with a boolean expression for any true/false combinations of literals, but it is difficult, in general, to determine the true/false combination needed to satisfy a boolean expression that is given. Our talk will summarize our progress toward this goal.

**Student(s)**

LaBounty, Tom  
Roering, Shawn

**Sponsor(s)**

Walk, Stephen

<b>Safety in Manufacturing</b>	Q2	5:20	North Voyageurs
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Manufacturing operations in both commercial and educational settings can be dangerous without appropriate procedures and guidelines for safety. Educational safety programs must be integrated into all manufacturing laboratory environments to prevent injuries and to raise awareness of proper tool use. The purpose of this study was to examine industry standards regarding safety in manufacturing and compare them to manufacturing lab facilities in SCSU. This study investigated government organizations such as the Occupational Safety and Health Administration (OSHA) and the American National Standards Institute (ANSI) which publish and enforce rules and safety guidelines. I met with SCSU's Buildings and Grounds Manager Patrick Kempen, who is a Safety Engineer and learned the appropriate guidelines for a safe lab. I also investigated the correct operating procedures for some of the machines used in the metals lab at SCSU and created user-friendly checklists for machine operators to refer to during set-up, operation, and teardown of the specific machines. The results from this study show that SCSU is a progressive university using industrial standards for manufacturing safety. Although construction of a new metrology lab and rearrangement of the metals lab led to some disarray during my investigation, the labs are improving as the remodeling is being completed. Safety in an educational manufacturing lab is everyone's responsibility and recommendations for safety will be presented as part of this study.

**Student(s)**

McGowan, Jeremy

**Sponsor(s)**

Kasi, Balsy

<b>Title and Abstract</b>	<b>Presentation ID</b>	<b>Time</b>	<b>Room</b>
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### **Ultrasonic Cleaning Process**

Q3

5:40

North  
Voyageurs

Ultrasonic cleaning is a process used for cleaning small intricate metal parts. The process involves using transducers to vibrate the bottom of a tank to drive pressure waves through a fluid at high frequencies (40 to 170 kHz) to remove process debris. It was discovered that fractures develop during the cleaning of the small parts. Investigations were conducted in order to gain an understanding of the process and its effects on the part material. Fracture analysis and finite element studies were performed to understand why the failure occurred. In addition, the influences of the ultrasonic process parameters were investigated in order to determine a relationship between the fracture and the fluid motion within the tank. The results of the investigation will be used to determine if the ultrasonic cleaning process is capable of cleaning parts in the future without causing damage or failure, and optimum process parameter settings will be obtained.

#### **Student(s)**

Prom, Brian  
Schlangen, Adam

#### **Sponsor(s)**

Covey, Steve

### **Innovex, Inc., Supervisory Control and Data Acquisition (SCADA) Project**

Q4

6:00

North  
Voyageurs

Innovex Inc., a leader in manufacturing highly complex flexible and chemically machined components, is continually striving to improve and optimize its production processes. One method of improving the process lines is to identify key process parameters and control those parameters. The means by which those parameters are identified is through statistical design of experiments (DOE). This research will allow the process engineers to complete their DOE effectively. It is the goal of this project to identify the critical process parameters and develop the method by which those parameters will be monitored and controlled. The implementation of a Supervisory Control and Data Acquisition (SCADA) system allows for the monitoring and controlling of real time process parameters. A SCADA system can be used to eliminate the need for manual data collection during DOE. The incorporation of analog sensors to be used with a programmable logic controller (PLC) is required in order to track process parameters. This system will allow historical and real time data tracking and logging in order to identify parameter trending during normal operation, this historical data combined with product defect information can be used to ensure product quality.

#### **Student(s)**

Decker, Jeremy  
Josephson, Keith

#### **Sponsor(s)**

Baliga, Ben  
Bekkala, Andrew

Title and Abstract	Presentation ID	Time	Room
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### **Socially Responsible Jobs**

R1

5:00

Ballroom C

The increasing numbers of websites that are geared toward social and environmental responsibility are evidence that people are looking for active ways to make change. People are turning to opportunities to make the world a better place by choosing work that is meaningful to them versus jobs defined by a capitalistic society. Despite the influence of corporate powers, people are realizing that it is their responsibility to counteract the damage being done to society and the environment. The purpose of this study was to evaluate the present state of socially responsible job opportunities on the Internet and to determine how many of these jobs meet criteria based on the definition of social responsibility as presented in the literature. Confusion or lack of a clear definition of social responsibility has made it possible for organizations to offer socially responsible jobs that do not really fit the principle of social responsibility. Using current literature on social responsibility, this study comprised a clear definition upon which to evaluate nonprofit websites that contained listings of socially responsible jobs. With the emergence of socially responsible job websites, an evaluative process to show the level of social responsibility and the functionality of socially responsible job sites is a useful tool for job seekers who choose to work toward social and economic justice. For those persons' interested in making a living while working on making viable changes to injustice, socially responsible websites are an invaluable tool to search for information on issues, a means to band together with others working for change, and a place to find jobs that will best help them achieve their definition of success.

#### **Student(s)**

Kraipowich, Jennifer

#### **Sponsor(s)**

Andrzejewski, Julie

### **Hate Groups during the 20th Century**

R2

5:20

Ballroom C

At the end of the 19th century, technology was in the hands of a few. Hate speech at this time was the work of and produced by the state. One such case is that of the *Protocols of the Learned Elders of Zion*. This work, produced by the Tsar's secret police, was quickly discredited by the civilized world. This did not detour it being presented as truth by those who sought to use it as a tool of hate. At this point in the 20th century, hate speech production was still limited to the few that could afford the great cost of production. Henry Ford was the next person that was able to produce the "Protocols." It was his wealth that that enabled him to replace the state as a producer of the hate speech. The lowering of the cost of production has resulted in the individual becoming the primary producer of hate speech. As each child with an Internet connection now has access to a plethora of "Do It Yourself" hate material from its own home, computer, books, posters, images and essays are just a click away from any child. With the help of new technologies, highly trained individuals have replaced the massive governmental effort of the past. In effect, the Nazi Ministry of Propaganda has shrunk to the size of a laptop computer.

#### **Student(s)**

Stiedl, Brian

#### **Sponsor(s)**

Bryce, Scott

<b>Title and Abstract</b>	<b>Presentation ID</b>	<b>Time</b>	<b>Room</b>
<b>Compliance with Corporate Codes of Conduct: The Case of Nestlé</b>	R3	5:40	Ballroom C

Over the past 40 years the Nestlé Corporation of Switzerland has marketed and sold infant formula in the so-called lesser-developed nations of Asia, Africa, and South America. Critics of these strategies continue to argue that the marketing techniques used has resulted in the growing number of infant deaths and global health concerns associated with malnutrition and formula contamination, as well as a reduction in the traditional method of breast-feeding. As a result of organized consumer boycotts, Nestlé voluntarily decided in 1982 to adopt a code of conduct to regulate its sales of infant formula. By agreeing in principle to comply with the World Health Organization's (WHO) International Code of the Marketing of Breast milk Substitutes, Nestlé reduced the number of complaints levied against its marketing strategies. Nestlé continues to maintain that it adheres to the code by implementing an ethical approach to its infant formula sales that addresses the concerns raised by its critics; however, as with most international codes of business conduct, Nestlé's compliance with the WHO Code is unenforceable, unmonitored and continues to violate the principles it should be protecting. This study will argue that the Nestlé Corporation is not in compliance with the WHO Code and that this lack of compliance represents a moral failure on the part of Nestlé. A defense of this claim will include the history behind Nestlé's business strategies, the content and moral justification of the WHO Code, and a detailed examination of those portions of the Code that Nestlé continues to violate.

**Student(s)**

Peterschick, Jennifer

**Sponsor(s)**

Smith, Jeffery

# Student Index

Student	Session and Discipline	Presentation		
		Number	Time	Room
Ahmed, Mirja J.	L All Disciplines	L57	3:00	Ballroom
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Awe, Sydney	J Social Sciences II	J1	1:30	Ballroom B
Ballweber, Katie	L All Disciplines	L48	3:00	Ballroom
Bauer, Michelle	O Gender Issues	O3	5:40	Watab
Bennett, Angela	I Social Sciences I	I1	1:30	Mississippi
Berg, Anne	L All Disciplines	L28	3:00	Ballroom
Betker, Michael	C Economics	C5	3:00	South Voyageurs
Bezdicek, Emily	J Social Sciences II	J1	1:30	Ballroom B
Bishop, Todd	G Science and Engineering III	G1	1:30	Ballroom A
Black, Kyle	K Spanish	K3	2:10	Watab
Blattenbauer, Tracy	L All Disciplines	L17	3:00	Ballroom
Blount, Theron	L All Disciplines	L59	3:00	Ballroom
Boerner, Debi	L All Disciplines	L63	3:00	Ballroom
Breitkreutz, Aaron	E Fine Arts and Humanities III	E2	2:00	Ballroom C
Bushee, Scott	E Fine Arts and Humanities III	E3	2:15	Ballroom C
Carlson, Jacob	L All Disciplines	L64	3:00	Ballroom
Chand, Sourabh	E Fine Arts and Humanities III	E3	2:15	Ballroom C
Chow-Bing, Ngeow	I Social Sciences I	I4	2:30	Mississippi
Chowdhury, Mizanur	L All Disciplines	L64	3:00	Ballroom
Chowdhury, Mohammed	L All Disciplines	L57	3:00	Ballroom
Christopherson, Bettina	O Gender Issues	O1	5:00	Watab
Clements, Janet	M Communication	M3	5:40	South Voyageurs
Collins, Michael	L All Disciplines	L46	3:00	Ballroom
Connolly, Ray	F Public Relations	F2	1:50	South Glacier
Cornett, Alan	L All Disciplines	L56	3:00	Ballroom
Crandall, Peter	L All Disciplines	L20	3:00	Ballroom
Dechaine, Jennifer	L All Disciplines	L30	3:00	Ballroom
Decker, Jeremy	Q Science and Engineering IV	Q4	6:00	North Voyageurs
Devonish, Julia	L All Disciplines	L42	3:00	Ballroom
Dhital, Ashish	L All Disciplines	L53	3:00	Ballroom
Dickhudt, Anne	L All Disciplines	L14	3:00	Ballroom

<b>Student</b>	<b>Session and Discipline</b>	<b>Presentation</b>		
		<b>Number</b>	<b>Time</b>	<b>Room</b>
Dillman, Krista	L All Disciplines	L27	3:00	Ballroom
Distelrath, Elizabeth	A Biological Sciences	A3	2:10	North Voyageurs
Dolan, Sean	E Fine Arts and Humanities III	E3	2:15	Ballroom C
Doss, Jeff	L All Disciplines	L08	3:00	Ballroom
Durst, Alesha	L All Disciplines	L17	3:00	Ballroom
Dyrdahl, Matthew	L All Disciplines	L05	3:00	Ballroom
Ebb, Eli	D Fine Arts and Humanities I	D4	2:15	Lady's Slipper
Ebnet, Heather	L All Disciplines	L61	3:00	Ballroom
Ervasti, Kat	L All Disciplines	L34	3:00	Ballroom
Evans, Addie	L All Disciplines	L04	3:00	Ballroom
Flicek, Theresa	L All Disciplines	L43	3:00	Ballroom
Frank, Erik S.	E Fine Arts and Humanities III	E3	2:15	Ballroom C
Fritz, Daniel	L All Disciplines	L37	3:00	Ballroom
Frodl, Brett J.	L All Disciplines	L10	3:00	Ballroom
Frohman, Niki	J Social Sciences II	J1	1:30	Ballroom B
Gabrawy, Mariann	L All Disciplines	L03	3:00	Ballroom
Gallien, Kathryn	K Spanish	K2	1:50	Watab
Garn, Barbara	O Gender Issues	O2	5:20	Watab
Gehrke, Jason	B Science and Engineering I	B3	2:10	North Glacier
Geppert, Katie	L All Disciplines	L34	3:00	Ballroom
Ghorbani, Shireen	D Fine Arts and Humanities I	D3	2:00	Lady's Slipper
Gillitzer, Melissa	E Fine Arts and Humanities III	E3	2:15	Ballroom C
Gilpin, Josh	L All Disciplines	L36	3:00	Ballroom
Gobeli, Paul	B Science and Engineering I	B3	2:10	North Glacier
Gonnion, Scott	L All Disciplines	L16	3:00	Ballroom
Green, Amy	L All Disciplines	L12	3:00	Ballroom
Gunderson, Eric	C Economics	C4	2:30	South Voyageurs
Gunderson, Katie	L All Disciplines	L17	3:00	Ballroom
Gurung, Nir	L All Disciplines	L54	3:00	Ballroom
Haake, Erin	N Fine Arts and Humanities II	N2	5:20	Lady's Slipper
Haukos, Chris	P Science and Engineering II	P4	6:00	Mississippi
Hecker, Beth	L All Disciplines	L45	3:00	Ballroom
Heinks, Daniel	L All Disciplines	L52	3:00	Ballroom

<b>Student</b>	<b>Session and Discipline</b>	<b>Presentation</b>		
		<b>Number</b>	<b>Time</b>	<b>Room</b>
Henick, Anne Marie	F Public Relations	F4	2:30	South Glacier
Heying, Cindi	L All Disciplines	L56	3:00	Ballroom
Hinson, Ryan	A Biological Sciences	A2	1:50	North Voyageurs
Holt, Laura	L All Disciplines	L58	3:00	Ballroom
Hoogeveen, Laurie	I Social Sciences I	I1	1:30	Mississippi
Houser, Anne	L All Disciplines	L01	3:00	Ballroom
Huff, Alyson	E Fine Arts and Humanities III	E3	2:15	Ballroom C
Ihla, Conrad	L All Disciplines	L08	3:00	Ballroom
Jabs, Angela	I Social Sciences I	I3	2:10	Mississippi
Jansky, Peg	A Biological Sciences	A2	1:50	North Voyageurs
Jesukaitis, Trent	E Fine Arts and Humanities III	E3	2:15	Ballroom C
Johnson, Mina	I Social Sciences I	I2	1:50	Mississippi
Josephson, Keith	Q Science and Engineering IV	Q4	6:00	North Voyageurs
Kakuk, Michael	G Science and Engineering III	G5	2:50	Ballroom A
Kampa, Wade	N Fine Arts and Humanities II	N4	6:00	Lady's Slipper
Kane, Dale	L All Disciplines	L16	3:00	Ballroom
Kapoor, Sonu	I Social Sciences I	I3	2:10	Mississippi
Kaufeld, Wendilyn	P Science and Engineering II	P1	5:00	Mississippi
Kaufeld, Wendilyn	L All Disciplines	L11	3:00	Ballroom
Kawecki, Michelle	L All Disciplines	L20	3:00	Ballroom
Keleny, Jan	B Science and Engineering I	B1	1:30	North Glacier
Kelley, Sam	L All Disciplines	L58	3:00	Ballroom
Khan, Mynul	G Science and Engineering III	G4	2:30	Ballroom A
Kilian, Tony	L All Disciplines	L64	3:00	Ballroom
Kraipowich, Jennifer	R Social Sciences III	R1	5:00	Ballroom C
Krueger, Noel	L All Disciplines	L04	3:00	Ballroom
Krueger, Noel	L All Disciplines	L07	3:00	Ballroom
Kudo, Mari	M Communication	M5	6:20	South Voyageurs
LaBounty, Tom	Q Science and Engineering IV	Q1	5:00	North Voyageurs
Lane, Jesse	L All Disciplines	L24	3:00	Ballroom
Larson, Jeremy	A Biological Sciences	A2	1:50	North Voyageurs
Lee, Peter	L All Disciplines	L65	3:00	Ballroom
Lien, Shawna	J Social Sciences II	J1	1:30	Ballroom B

<b>Student</b>	<b>Session and Discipline</b>	<b>Presentation</b>		
		<b>Number</b>	<b>Time</b>	<b>Room</b>
Lieng, Shee Jack	L All Disciplines	L65	3:00	Ballroom
Liles, Justin	L All Disciplines	L29	3:00	Ballroom
Lin, I-Chun	K Spanish	K1	1:30	Watab
Lovold, Mandy	L All Disciplines	L50	3:00	Ballroom
Lundy, Dave	I Social Sciences I	I2	1:50	Mississippi
Magel, Audra	J Social Sciences II	J1	1:30	Ballroom B
Mahlum, Anne	I Social Sciences I	I3	2:10	Mississippi
Manthie, Jessica	L All Disciplines	L33	3:00	Ballroom
Materu, Arnold	L All Disciplines	L57	3:00	Ballroom
Matros, Nicole	L All Disciplines	L32	3:00	Ballroom
McAvoy, Sean	C Economics	C1	1:30	South Voyageurs
McCann, Shanna	M Communication	M5	6:20	South Voyageurs
McGowan, Jeremy	Q Science and Engineering IV	Q2	5:20	North Voyageurs
McNair, Megan	L All Disciplines	L09	3:00	Ballroom
Merkel, Stacia	G Science and Engineering III	G2	1:50	Ballroom A
Moone, Rajean	L All Disciplines	L01	3:00	Ballroom
Morris, Garrett	L All Disciplines	L47	3:00	Ballroom
Morrison, Darla	L All Disciplines	L21	3:00	Ballroom
Munajat, Rama	M Communication	M1	5:00	South Voyageurs
Myers, Kevin	N Fine Arts and Humanities II	N1	5:00	Lady's Slipper
Nelson, James	G Science and Engineering III	G3	2:10	Ballroom A
Nkhata, Katai	L All Disciplines	L15	3:00	Ballroom
Noman, Zubair	G Science and Engineering III	G4	2:30	Ballroom A
Oien, Josh	L All Disciplines	L09	3:00	Ballroom
Olson, Mark	L All Disciplines	L08	3:00	Ballroom
Opp, Jeff	F Public Relations	F3	2:10	South Glacier
Osen, Kevin	L All Disciplines	L56	3:00	Ballroom
Otsuki, Akira	L All Disciplines	L43	3:00	Ballroom
Paggen, Michael	E Fine Arts and Humanities III	E3	2:15	Ballroom C
Paxton, Jacqi	L All Disciplines	L17	3:00	Ballroom
Peters, Judith	L All Disciplines	L60	3:00	Ballroom
Peterschick, Jennifer	C Economics	C2	1:50	South Voyageurs
Peterschick, Jennifer	R Social Sciences III	R3	5:40	Ballroom C

<b>Student</b>	<b>Session and Discipline</b>	<b>Presentation</b>		
		<b>Number</b>	<b>Time</b>	<b>Room</b>
Peterson, Tesha	I Social Sciences I	I2	1:50	Mississippi
Prom, Brian	Q Science and Engineering IV	Q3	5:40	North Voyageurs
Radtke, Roxanne	C Economics	C3	2:10	South Voyageurs
Rafferty, Jake	P Science and Engineering II	P3	5:40	Mississippi
Ramadani, Ahmad	G Science and Engineering III	G4	2:30	Ballroom A
Rao, Nishta	L All Disciplines	L43	3:00	Ballroom
Reed, Sarah	L All Disciplines	L20	3:00	Ballroom
Reeve, Bari	L All Disciplines	L49	3:00	Ballroom
Richey, Eric	L All Disciplines	L20	3:00	Ballroom
Riska, Karen	L All Disciplines	L35	3:00	Ballroom
Robinson, Kari	L All Disciplines	L01	3:00	Ballroom
Rodriguez, Marisol	I Social Sciences I	I2	1:50	Mississippi
Roe, Christina	J Social Sciences II	J1	1:30	Ballroom B
Roehler, Matt	L All Disciplines	L55	3:00	Ballroom
Roering, Shawn	Q Science and Engineering IV	Q1	5:00	North Voyageurs
Rosenberg, Julie	L All Disciplines	L63	3:00	Ballroom
Rudiger, Megan	L All Disciplines	L55	3:00	Ballroom
Runadive, Sunita	L All Disciplines	L16	3:00	Ballroom
Russell, Sandra	M Communication	M4	6:00	South Voyageurs
Sakry, Christy	L All Disciplines	L04	3:00	Ballroom
Salyer, Faye	L All Disciplines	L32	3:00	Ballroom
Sanguino, Jorge	L All Disciplines	L52	3:00	Ballroom
Sanguino, Jorge	L All Disciplines	L62	3:00	Ballroom
Sather, Jenny	D Fine Arts and Humanities I	D1	1:30	Lady's Slipper
Scanlan, Michelle	L All Disciplines	L38	3:00	Ballroom
Schlangen, Adam	Q Science and Engineering IV	Q3	5:40	North Voyageurs
Schwaller, Shannon	A Biological Sciences	A1	1:30	North Voyageurs
Schweiger, Paul	L All Disciplines	L23	3:00	Ballroom
Scott, Colet	L All Disciplines	L17	3:00	Ballroom
Scott, Daria	B Science and Engineering I	B5	2:50	North Glacier
Scott, Daria	L All Disciplines	L41	3:00	Ballroom
Simms, Allison	L All Disciplines	L17	3:00	Ballroom
Smith, Jason	M Communication	M2	5:20	South Voyageurs

<b>Student</b>	<b>Session and Discipline</b>	<b>Presentation</b>		
		<b>Number</b>	<b>Time</b>	<b>Room</b>
Solheid, John	E Fine Arts and Humanities III	E1	1:50	Ballroom C
Spinar, Michael	B Science and Engineering I	B4	2:30	North Glacier
Sprister, Dane	L All Disciplines	L55	3:00	Ballroom
Spychala, Alicia	P Science and Engineering II	P2	5:20	Mississippi
St. Clair, Michelle	L All Disciplines	L34	3:00	Ballroom
Steffenson, Cade	L All Disciplines	L13	3:00	Ballroom
Stiedl, Brian	R Social Sciences III	R2	5:20	Ballroom C
Streefland, Lisa	L All Disciplines	L32	3:00	Ballroom
Strom, Corey	L All Disciplines	L20	3:00	Ballroom
Stuart, Susan	I Social Sciences I	I5	2:50	Mississippi
Tan, Mun Sie	L All Disciplines	L19	3:00	Ballroom
Tan, Wei	L All Disciplines	L53	3:00	Ballroom
Tedrow, O'Niell	L All Disciplines	L06	3:00	Ballroom
Thampi , Suraj	B Science and Engineering I	B2	1:50	North Glacier
Tidwell, Juli	D Fine Arts and Humanities I	D5	2:45	Lady's Slipper
Vollbrecht, Matthew	L All Disciplines	L22	3:00	Ballroom
Vrieze, Steve	L All Disciplines	L40	3:00	Ballroom
Waisley, Kristen	J Social Sciences II	J1	1:30	Ballroom B
Ward, Jeffrey	L All Disciplines	L02	3:00	Ballroom
Weber, Steve	L All Disciplines	L63	3:00	Ballroom
Weckwerth, Leon	L All Disciplines	L43	3:00	Ballroom
Weidner, Wendy	L All Disciplines	L01	3:00	Ballroom
Wendt, Aimee	D Fine Arts and Humanities I	D2	1:45	Lady's Slipper
Wendt, Patricia	L All Disciplines	L51	3:00	Ballroom
Whipple, Scott	L All Disciplines	L04	3:00	Ballroom
Whittlinger, Amanda	L All Disciplines	L25	3:00	Ballroom
Williams, Diana	L All Disciplines	L50	3:00	Ballroom
Wojchowski, Dylan	L All Disciplines	L44	3:00	Ballroom
Yap, Pak Ching	L All Disciplines	L65	3:00	Ballroom
Yap, Yoke	L All Disciplines	L18	3:00	Ballroom
Zellmer, Jonathan	L All Disciplines	L26	3:00	Ballroom
Zhang, Wei	L All Disciplines	L54	3:00	Ballroom
Zhao, Shukui	L All Disciplines	L39	3:00	Ballroom

<b>Student</b>	<b>Session and Discipline</b>	<b>Presentation</b>		
		<b>Number</b>	<b>Time</b>	<b>Room</b>
Zimpel, Renae	L All Disciplines	L17	3:00	Ballroom
Zuo, Xiangwei	F Public Relations	F1	1:30	South Glacier

# Faculty Sponsor Index

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Bacharach, David	Health, Physical Education, Recreation and Sport Science	L40	3:00	Ballroom
		L42	3:00	Ballroom
		P4	6:00	Mississippi
Baliga, Ben	Mechanical and Manufacturing Engineering	Q4	6:00	North Voyageurs
Bekkala, Andrew	Mechanical and Manufacturing Engineering	M2	5:20	South Voyageurs
		Q4	6:00	North Voyageurs
Bryce, Scott	Center for Holocaust and Genocide Education	R2	5:20	Ballroom C
Bumgarner, Jeff	Criminal Justice	L45	3:00	Ballroom
Chen, Jeff	Mathematics	L58	3:00	Ballroom
Conrad, Donna	Theatre, Film Studies and Dance	D5	2:45	Lady's Slipper
Covey, Steve	Mechanical and Manufacturing Engineering	Q3	5:40	North Voyageurs
Devers, Monica	Communication Disorders	L28	3:00	Ballroom
DeVoe, Marlene	Psychology	L01	3:00	Ballroom
Frank, Stephen	Political Science	I3	2:10	Mississippi
Gajewski, Byron	Statistics	G1	1:30	Ballroom A
		G2	1:50	Ballroom A
		G3	2:10	Ballroom A
Gazal, Oladele	Biological Sciences	L47	3:00	Ballroom
George, Peter	Electrical and Computer Engineering	L56	3:00	Ballroom
		L63	3:00	Ballroom
Glazos, Michael	Electrical and Computer Engineering	L54	3:00	Ballroom
		L55	3:00	Ballroom
Godding, Phillip	Psychology	L12	3:00	Ballroom
		L46	3:00	Ballroom
Gold, Debra	Sociology and Anthropology	A1	1:30	North Voyageurs
Gregg, Ron	Theatre, Film Studies and Dance	N1	5:00	Lady's Slipper
		N3	5:40	Lady's Slipper
		N4	6:00	Lady's Slipper
Gregory, Daniel	Chemistry	L24	3:00	Ballroom
		L37	3:00	Ballroom

<b>Sponsor</b>	<b>Department</b>	<b>Presentation Number</b>	<b>Time</b>	<b>Room</b>
Gregory, Daniel	Chemistry	L43	3:00	Ballroom
		L50	3:00	Ballroom
		P2	5:20	Mississippi
		P3	5:40	Mississippi
Grossman, Philip	Economics	C1	1:30	South Voyageurs
		C2	1:50	South Voyageurs
		C3	2:10	South Voyageurs
		C4	2:40	South Voyageurs
		C5	3:00	South Voyageurs
Haglin, Kevin	Physics, Astronomy and Engineering Science	G5	2:50	Ballroom A
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		L60	3:00	Ballroom
Hansen, Tony	Earth and Atmospheric Sciences	B4	2:30	North Glacier
		B5	2:50	North Glacier
		L29	3:00	Ballroom
		L41	3:00	Ballroom
Heinrich, Lisa	Mass Communications	F2	1:50	South Glacier
		F3	2:10	South Glacier
Heneghan, J. Michael	Electrical and Computer Engineering	L65	3:00	Ballroom
Hotz, John	Counselor Education and Educational Psychology	L27	3:00	Ballroom
Hou, Ling	Electrical and Computer Engineering	L08	3:00	Ballroom
		L64	3:00	Ballroom
Immelman, Aubrey	Psychology, College of St. Benedict	L33	3:00	Ballroom
Jeannot, Michael	Chemistry	L26	3:00	Ballroom
Julius, Matthew	Biological Sciences	L06	3:00	Ballroom
		L07	3:00	Ballroom
		L16	3:00	Ballroom
		L25	3:00	Ballroom
Kasi, Balsy	Environmental and Technological Studies	B2	1:50	North Glacier
		F1	1:30	South Glacier
		B1	1:30	North Glacier
		Q2	5:20	North Voyageurs
Kim, Marie	History	E1	1:50	Ballroom C
Kling, Kristen	Psychology	L32	3:00	Ballroom

<b>Sponsor</b>	<b>Department</b>	<b>Presentation Number</b>	<b>Time</b>	<b>Room</b>
Kling, Kristen	Psychology	L34	3:00	Ballroom
		L48	3:00	Ballroom
Koffi, Ettien	English	M4	6:00	South Voyageurs
Kukoleca-Hammes, Michelle	Political Science	I1	1:30	Mississippi
		I4	2:40	Mississippi
Mahroof-Tahir, Mohammed	Chemistry	L30	3:00	Ballroom
		L38	3:00	Ballroom
Marcattilio, Anthony	Biological Sciences	L03	3:00	Ballroom
Meerschaert, JoAnn	Biological Sciences	L15	3:00	Ballroom
		L21	3:00	Ballroom
Melcher, Joe	Psychology	L18	3:00	Ballroom
Miller, Ken	Mechanical and Manufacturing Engineering	A2	1:50	North Voyageurs
Nastrom, Gregory	Earth and Atmospheric Sciences	L11	3:00	Ballroom
		P1	5:00	Mississippi
Nuccetelli, Susana	Philosophy	E2	2:00	Ballroom C
		E3	2:15	Ballroom C
Ore, Tracy	Sociology and Anthropology	L61	3:00	Ballroom
Pinnick, David	Physics, Astronomy and Engineering Science	L02	3:00	Ballroom
Rigopoulou-Melcher, Aspasia	Community Development	L05	3:00	Ballroom
Robinson, David	Statistics	L19	3:00	Ballroom
Rockenstein, Zoa	Psychology	L32	3:00	Ballroom
Rodgers, Judith	Center for Information Media	M3	5:40	South Voyageurs
		O1	5:00	Watab
Rodriguez, Ilia	Mass Communications	F4	2:40	South Glacier
Samuel, Patricia	Women's Studies	O3	5:40	Watab
Sarnath, Ramnath	Computer Science	G4	2:30	Ballroom A
Saupe, Stephen	Biological Sciences, College of St. Benedict	A3	2:10	North Voyageurs
Schoenfuss, Heiko	Biological Sciences	L06	3:00	Ballroom
		L23	3:00	Ballroom
		L44	3:00	Ballroom
Schultz, Emily	Sociology and Anthropology	I5	2:50	North Glacier
		O2	5:20	Watab
Seifert, John	Health, Physical Education, Recreation and Sport Science	L09	3:00	Ballroom

<b>Sponsor</b>	<b>Department</b>	<b>Presentation Number</b>	<b>Time</b>	<b>Room</b>
Seifert, John	Health, Physical Education, Recreation and Sport Science	L35	3:00	Ballroom
Smith, Jeffery	Philosophy	R3	5:40	Ballroom C
Splittgerber, Lisa	Foreign Languages and Literature	K1	1:30	Watab
		K2	1:50	Watab
		K3	2:10	Watab
Sreerama, Lakshmaiah	Chemistry	L24	3:00	Ballroom
		L30	3:00	Ballroom
		L36	3:00	Ballroom
		L38	3:00	Ballroom
		L43	3:00	Ballroom
		L47	3:00	Ballroom
		L49	3:00	Ballroom
		L50	3:00	Ballroom
		L51	3:00	Ballroom
Tenamoc, Mariah	Sociology and Anthropology	J1	1:30	Ballroom B
Teutsch-Dwyer, Marya	English	M1	5:00	South Voyageurs
		M5	6:20	South Voyageurs
Turner, Sandra	Biological Sciences	L04	3:00	Ballroom
		L16	3:00	Ballroom
Valdes, Leslie	Psychology	L14	3:00	Ballroom
Voelz, Neal	Biological Sciences	L03	3:00	Ballroom
		L13	3:00	Ballroom
		L16	3:00	Ballroom
		L22	3:00	Ballroom
Wagner, Steven	Political Science	I2	1:50	Mississippi
Walk, Stephen	Mathematics	Q1	5:00	North Voyageurs
Wells, Tim	Music	N2	5:20	Lady's Slipper
Wentworth, Brenda	Theatre, Film Studies and Dance	D1	1:30	Lady's Slipper
		D2	1:45	Lady's Slipper
		D3	2:00	Lady's Slipper
		D4	2:15	Lady's Slipper
Whites, Margery	Communication Disorders	L17	3:00	Ballroom
Winter, Nathan	Chemistry	L10	3:00	Ballroom

<b>Sponsor</b>	<b>Department</b>	<b>Presentation Number</b>	<b>Time</b>	<b>Room</b>
Womack, Maria	Physics, Astronomy and Engineering Science	L20	3:00	Ballroom
Yao, Aiping	Electrical and Computer Engineering	L52	3:00	Ballroom
		L53	3:00	Ballroom
		L57	3:00	Ballroom
Yu, Warren	Mechanical and Manufacturing Engineering	B3	2:10	North Glacier
Zheng, Yi	Electrical and Computer Engineering	L39	3:00	Ballroom
		L62	3:00	Ballroom