

2014



Monday April 14, 2014

MINNESOTA STATE UNIVERSITY MOORHEAD PRESENTS

3rd Annual
Minnesota Conference of
**UNDERGRADUATE SCHOLARLY
AND CREATIVE ACTIVITY**



MINNESOTA STATE UNIVERSITY
MOORHEAD



Welcome to the Minnesota Conference of Undergraduate Scholarly and Creative Activity

MN Conference of Undergraduate Scholarly and Creative Activity Campus Coordinators

Minnesota State University - Mankato

Marilyn Hart

Elizabeth J. Sandell

Interim Director, Undergraduate Research Center

Minnesota State University - Moorhead

Richard Lahti

Associate Professor of Chemistry

Winona State University

Mike Delong

Director Large Rivers Studies Center

Southwest Minnesota State University

Emily Deaver

Environmental Science

St. Cloud State University

Jodi L. Kuznia

Director of Research Development

Bemidji State University

Troy Gilbertson

Professor, Criminal Justice

Metropolitan State University

Sumiko Otsubo

Associate Professor of History

Jennifer Schultz

Asst. Prof and Curriculum Coordinator for Human Resource Management

Inver Hills Community College

David Higgins

English

April 3, 2014

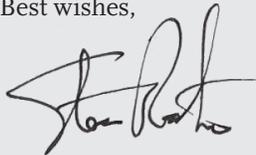
To everyone contributing to the Minnesota Undergraduate Scholars Conference:

It is both an honor and a pleasure to join with the presidents of our state colleges and universities to recognize the students who are sharing their scholarly insights and creative talents at this year's conference. Because the Minnesota Undergraduate Scholars Conference is now in its third year, I am delighted to call this a new tradition in our academic calendar.

Faculty already understand the importance of sharing their ideas with their colleagues, so I am grateful to see faculty mentors working with students to prepare them for this kind of transformative experience. This is a wonderful opportunity for our students to move from being a learner to being a teacher.

I congratulate the students and faculty of the Minnesota State Colleges and Universities for their commitment to academic excellence.

Best wishes,



Steven Rosenstone

Chancellor, Minnesota State Colleges and Universities





Greetings:

Our annual Student Academic Conference is a Spring Semester highlight. Since 1999, it has provided an outlet for student research and creative work. Over the years thousands have shared their knowledge in an environment that encourages inquiring minds and faculty mentoring. It's an activity that underscores our mission statement:

'Minnesota State University Moorhead is a caring community promising all students the opportunity to discover their passions, the rigor to develop intellectually, and the versatility to shape a changing world.'

The conference offers a stage for new ideas from the next generation of researchers and leaders. It advances intellectual development and challenges students to effectively communicate their knowledge. Defending research in a supportive community of student and faculty scholars is a great way to experience personal and professional growth.

Congratulations to the student participants, faculty mentors, and the Student Academic Conference planners.

A very good idea has become a wonderful tradition!

Edna Mora Szymanski

President

Minnesota State University Moorhead



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3rd Annual Minnesota Conference of Undergraduate Scholarly and Creative Activity

SUNDAY, APRIL 13TH

6:00 – 8:00 p.m. Check-in
CMU Recreation Room

6:00 – 9:00 p.m. Evening Social and Pizza
CMU Recreation Room

MONDAY, APRIL 14TH

7:30 a.m. – 3:00 p.m. Check-in
CMU Lobby

8:00 – 9:30 a.m. Breakfast
CMU Ballrooms

8:15 – 8:30 a.m. Welcome
CMU Ballrooms

8:30 – 10:30 a.m. Poster Session I
CMU Hallways

9:00 – 10:00 a.m. Oral Session I
CMU 203, 205, 207, 208, 214, 216

10:15 – 11:15 a.m. Oral Session II
CMU 203, 205, 207, 208, 214, 216

11:30 a.m. – 12:40 p.m. Lunch
CMU Ballrooms

Luncheon Keynote Speaker
John O'Brien, Vice Chancellor, MnSCU.

12:50 – 2:50 p.m. Poster Session II
CMU Hallways

12:50 – 1:50 p.m. Oral Session III
CMU 203, 205, 207, 208, 214, 216

2:00 – 3:00 p.m. Oral Session IV
CMU 203, 205, 207, 208, 214, 216

**Welcome from the Student Academic Conference
Committee of MSU Moorhead**

I am excited to welcome you to the campus of Minnesota State University Moorhead for the third annual Minnesota Conference of Undergraduate Scholarly and Creative Activity. For the second straight year, all seven of the MnSCU universities (Minnesota State University - Mankato, Minnesota State University Moorhead, Winona State University, Southwest Minnesota State University, St. Cloud State University, Bemidji State University and Metropolitan State University) have sent students to participate in this conference. In addition, Inver Hills Community College is also arriving with a large contingent of students.

Today you will see oral and poster presentations from a variety of disciplines – from art to nursing, chemistry to gender and women’s studies, and from education to psychology. These presentations showcase the humanities, sciences, arts, and professional education that our MnSCU institutions provide to students throughout Minnesota.

The purpose of this event, as well as the local research events held at each of the MnSCU universities and the Posters in the Rotunda held this past February in St. Paul, is to showcase the outstanding research, scholarship, and creative activity that students in MnSCU institutions complete with faculty, often outside the constraints of regular classroom time. Events like these demonstrate the excellent opportunities that exist across all campuses for engaged students to grow and prepare for future endeavors, whether that future is graduate school or employment in their chosen field. If you look carefully today, you may see or hear research by students that has already been accepted for publication in professional journals... truly an amazing achievement for students who do not even possess their first degree.

I suspect I am not alone in having benefited from the opportunity to work with so many energetic and talented faculty from the various campuses. It is projects like this that offer faculty an opportunity for growth and collaboration across the MnSCU system.

Once again, welcome, and I hope you enjoy the day!



Richard Lahti

Chair, Student Academic Conference Committee, Minnesota State University Moorhead





John O'Brien

*Vice Chancellor for Academic and Student Affairs,
Minnesota State Colleges and Universities System*



Biography

Dr. John O'Brien serves as Sr. Vice Chancellor for Academic and Student Affairs for the Minnesota State Colleges and Universities system, serving over 400,000 students across the state. He previously served for three years as president of North Hennepin Community College, where he was named "President of the Year" by the statewide Minnesota State Colleges Student Association in 2013. He was also director of the Minnesota State Colleges and Universities Students First initiative (2008-09), as well as academic vice president and acting president at Century College (2005-08).

Prior to his campus leadership, he served for six years as associate vice chancellor at the Office of the Chancellor. As a system leader, his work focused on supporting strategic planning, improving consultation

and shared governance and providing instructional technology-related services to colleges and universities across the state.

For a number of years, he taught as adjunct faculty at several colleges and universities throughout the Twin Cities. He was a full-time faculty member at Normandale Community College for six years, where he was president of the faculty association and was active in campus governance and campus life. Along with creative writing, he has published scholarships in his academic discipline over the years. St. Martin's Press published his book on Czech novelist Milan Kundera.

John O'Brien earned his Ph.D. in English from the University of Minnesota and a master's degree in Anglo-Irish literature as a Rotary Scholar at Trinity College in Dublin, Ireland. His undergraduate degree from Augustana College is in English and education with a minor in speech, communications and theatre.

He speaks on higher education topics nationally, and occasionally internationally—often on the promise and challenges of teaching and learning with emerging technologies.

John was a first-generation college student, growing up in Worthington, Minn., and he has lived in metro area for the last 20 years. He and his wife, Kathryn, currently live in Minneapolis.



PARTICIPATING COLLEGES





INDEX OF TITLES

1. *Effect of Student Loan Debt on Homeownership*
Presenter(s): Katie Kotschevar
Faculty mentor: King Banaian
Institution: St. Cloud State University
Department/program: Economics
2. *Recycling Project*
Presenter(s): Abraham Hierlmaier
Faculty mentor: Mahmoud AlOdeh
Institution: Bemidji State University
3. *The Lynching of American Indians in Minnesota: A Case Study In Otherization*
Presenter(s): Alexander Weston
Faculty mentor: Sumiko Otsubo
Institution: Metro State University
Department/program: History
4. *Yesterday, All My Problems Seemed So Far Away: Examining the Definition of Romanticism Through an Interpretation of William Wordsworth's "Ode: Intimations of Immortality"*
Presenter(s): Andrew Kenady
Faculty mentor: Tammy Durant
Institution: Metro State University
Department/program: English
5. *Do ecological rates in midges respond in predictable ways to temperature?*
Presenter(s): Andrew Larson, Jessica Lindstrom & Nikholai O'Hara
Faculty mentor: Daniel McEwen
Institution: Minnesota State University Moorhead
Department/program: Biology
6. *Mapping the Spatial and Temporal Expression Pattern of Chst15 mRNA in the Cochlea of Euthyroid Mice Throughout Development*
Presenter(s): Andrew Nicholson & Cari Graber
Faculty mentor: David Sharlin
Institution: Minnesota State University, Mankato
Department/program: Biology
7. *The Wandering Fox*
Presenter(s): Anthony Caron
Faculty mentor: Marianne Zarzana
Institution: Southwest Minnesota State University
Department/program: Creative Writing Program, English
8. *Nationalism and International Sport: German Soccer and the Reluctance to Show Pride*
Presenter(s): Anthony Reffke
Faculty mentor: Joseph Kunkel
Institution: Minnesota State University, Mankato
Department/program: Political Science
9. *Media Influence on Body Image Perspectives: the Effects of Healthy Eating Identities and Restrictive Eating Patterns*
Presenter(s): Ashley Forman
Faculty mentor: Amanda M. Brouwer
Institution: Winona State University
Department/program: Psychology
10. *Cost of Higher Education*
Presenter(s): Beau Roberts
Faculty mentor: Kara Lindaman
Institution: Winona State University
Department/program: Political Science
11. *Discourse as a Solution to Problems of Self-Definition and Self-Expression in Invisible Man*
Presenter(s): Benly Larson
Faculty mentor: Donna Casella
Institution: Minnesota State University, Mankato
Department/program: English
12. *Final Stages of the Sri Lankan War: A Journey to Unanswered Accountability*
Presenter(s): Bibek Rai
Faculty mentor: Andrew Conteh
Institution: Minnesota State University Moorhead
Department/program: Political Science
13. *Personality Differences in Knowledge of Social Issues*
Presenter(s): Bradley Nelson
Faculty mentor: Jody Illies
Institution: St. Cloud State University
Department/program: Psychology
14. *Ease of Selection and Task Switching*
Presenter(s): Brandon Richards & Josephine Nilsson
Faculty mentor: Leslie Valdes
Institution: St. Cloud State University
Department/program: Psychology

15. *Modifying practice and feedback schedules to improve transfer of “Easy Onset” in stuttering treatment*
Presenter(s): Breanna Ruud & Sami Ryan
 Faculty mentor: Sarah Smits-Bandstra
 Institution: St. Cloud State University
 Department/program: Communication Sciences and Disorders
16. *Isolation of Actin and Lumbrokinase Genes from the Common Earthworm *Lumbricus rubellus**
Presenter(s): Brittany Warren
 Faculty mentor: Angela Hahn
 Institution: Bemidji State University
17. *Khan Academy: Free Education? It is about time!*
Presenter(s): Brittany Bunn & Youngshin Lee
 Faculty mentor: Geok Ng
 Institution: Minnesota State University Moorhead
 Department/program: Mathematics
18. *Modifying practice and feedback schedules to improve transfer of “Pause” in stuttering treatment*
Presenter(s): Lindsay Hoffman & Symphony Moser
 Faculty mentor: Sarah Smits-Bandstra
 Institution: St. Cloud State University
 Department/program: Communication Sciences and Disorders
19. *Technique for Staining of the Myelin-like Sheath in Earthworms*
Presenter(s): Chantelle Koppe
 Faculty mentor: Angela Hahn
 Institution: Bemidji State University
20. *High School Students Tell All: Analyzing Facebook Confession Sites*
Presenter(s): Chelsea Conrad
 Faculty mentor: Kathy Bertsch
 Institution: Minnesota State University, Mankato
 Department/program: Psychology
21. *The New Wave*
Presenter(s): Chelsea Palmer
 Faculty mentor: Wayne C. Ripley
 Institution: Winona State University
 Department/program: English
22. *Effects of Temperature on Snail Growth*
Presenter(s): Chizoba Adizue & Colin Teichert
 Faculty mentor: Daniel McEwen
 Institution: Minnesota State University Moorhead
 Department/program: Biology
23. *An Oral History and Auto-ethnography of Sexuality Privilege and Gender Inequity in LGBTQ Hmong America*
Presenter(s): Chong Vang
 Faculty mentor: Amy Sullivan
 Institution: Minnesota State University, Mankato
 Department/program: Gender and Women's Studies
24. *The Monster of Body Ideals*
Presenter(s): Christy Ohlrogge
 Faculty mentor: David Higgins
 Institution: Inver Hills Community College
25. *50 Shades of Pop Culture’s Betrayal: A critique of the portrayal of BDSM in popular culture*
Presenter(s): Clare Palmer
 Faculty mentor: Karen Branden
 Institution: Minnesota State University Moorhead
 Department/program: Sociology
26. *Active Chemical Display Cases: Doing Experiments in Public*
Presenter(s): Constance Anderson
 Faculty mentor: Jeffrey Bodwin
 Institution: Minnesota State University Moorhead
 Department/program: Chemistry
27. *Synthesis of a Chemotherapeutic Drug: An Analogue of Goniothalamine*
Presenter(s): Curtis Payne
 Faculty mentor: Mark Mechelke
 Institution: St. Cloud State University
 Department/program: Chemistry
28. *Hitting the Target*
Presenter(s): Dakota Aberle, Bailey Holzbauer & Tara Andresen
 Faculty mentor: Ruth Lumb
 Institution: Minnesota State University Moorhead
 Department/program: Marketing



29. *Reading of Original Works*
Presenter(s): Daniel Kilkelly
Faculty mentor: Marianne Zarzana
Institution: Southwest Minnesota State University
Department/program: Creative Writing Program, English
30. *Structural Factors Affecting the Rate of the Reaction Between Singlet Oxygen and Proteins*
Presenter(s): Danielle Hron
Faculty mentor: John Thoenke
Institution: Minnesota State University, Mankato
Department/program: Chemistry
31. *NHL Players and Their Home Countries*
Presenter(s): Diana Chambers
Faculty mentor: Jeffrey Ueland
Institution: Bemidji State University
32. *Exploring the Role of miRNA 393 in Soybean Stress Response*
Presenter(s): Dulanjani Rajaguru
Faculty mentor: James Rife
Institution: Minnesota State University, Mankato
Department/program: Chemistry
33. *A Case for American Ethnocentrism*
Presenter(s): Dylan Brenner
Faculty mentor: David Higgins
Institution: Inver Hills Community College
34. *Using Heart Rate as a Measure of Attention During a Visual Scanning Task: A Replication Study*
Presenter(s): Ellie Mausbach
Faculty mentor: Keith Gora
Institution: Bemidji State University
35. *The Dark Triad of Personality: A Review of Literature*
Presenter(s): Ellie Mausbach
Faculty mentor: Marsha Driscoll
Institution: Bemidji State University
36. *Move It and Lose It: Can Reframing Exercise Increase One's Intentions to Work Out?*
Presenter(s): Emily Bublitz
Faculty mentor: Jason Anderson
Institution: Minnesota State University Moorhead
Department/program: Communication Studies
37. *Assessing the Perceptions and Realities of Crime on Bemidji State University Campus*
Presenter(s): Emily Malterud
Faculty mentor: Troy Gilbertson
Institution: Bemidji State University
38. *Comparison of Protein Expression in Soy Bean by Two-Dimensional Electrophoresis*
Presenter(s): Emma Phelps
Faculty mentor: James Rife
Graduate student mentor: Tyler Achatz
Institution: Minnesota State University, Mankato
Department/program: Chemistry
39. *Earthworm Remyelination Gene Expression Analysis*
Presenter(s): Eric Barnes
Faculty mentor: Angela Hahn
Institution: Bemidji State University
40. *Gender and Public Opinion: Do Men and Women Have Differing Opinions on the Gender Wage Gap?*
Presenter(s): Erin Haugen
Faculty mentor: Kara Lindaman
Institution: Winona State University
Department/program: Political Science
41. *Exploring African-American Spirituals Through the Lenses of the Three Major Sociological Perspectives*
Presenter(s): Erin Reps
Faculty mentor: Kerry Livingston
Institution: Southwest Minnesota State University
Department/program: Sociology
42. *An Analysis of Bemidji State University's Tree Inventory and Distribution*
Presenter(s): Grant Bingham
Faculty mentor: Jeffrey Ueland
Institution: Bemidji State University
43. *Stock Recovery after Negative Press*
Presenter(s): Gregory Reimer
Faculty mentor: Queen Booker
Institution: Minnesota State University, Mankato
Department/program: Management

44. *Synthesis, Crystallization and Time of Flight Measurements of Rubrene Analogs*
Presenter(s): Hank Deuermeyer, Michael Grinsteiner & Chad Whaylen
 Faculty mentor: Russ Lidberg & Tamara Leenay
 Institution: St. Cloud State University
 Department/program: Chemistry & Physics
45. *Evaluation of Land Snail Populations in Deciduous and Coniferous Forests in the SMSU Wildlife Area*
Presenter(s): Hannah Beeler
 Faculty mentor: Emily Deaver & Thomas Dilley
 Institution: Southwest Minnesota State University
 Department/program: Environmental Science
46. *Subjectivity of Morality in “De Monfort”*
Presenter(s): Hayley Guevara
 Faculty mentor: Tammy Durant
 Institution: Metro State University
 Department/program: English
47. *The role of attachment in facial emotion scanning patterns of infant-mother dyads*
Presenter(s): Hayley Hilfer, Beth Anderson & Kelsey Ihringer
 Faculty mentor: Elizabeth Nawrot
 Institution: Minnesota State University Moorhead
 Department/program: Psychology
48. *The Cultural Heritage of China- Beijing Opera*
Presenter(s): Hiu Tung Chan
 Faculty mentor: David Wheeler
 Institution: Minnesota State University Moorhead
 Department/program: Theatre Arts
49. *Fabrication of Counter Electrodes for Microprobe Impedance Measurement*
Presenter(s): Iwnetim Abate
 Faculty mentor: Ananda Shastri
 Institution: Minnesota State University Moorhead
 Department/program: Physics
50. *Taxing The Sick*
Presenter(s): Jacob Carpenter
 Faculty mentor: Angela Hahn
 Institution: Bemidji State University
51. *Civil War Medicine*
Presenter(s): Jacob Clauson
 Faculty mentor: Annette Morrow
 Institution: Minnesota State University Moorhead
 Department/program: History
52. *Isolation of Actin and Lumbrokinase Genes from the Common Earthworm Lumbricus rubellus*
Presenter(s): Jake Paulson
 Faculty mentor: Angela Hahn
 Institution: Bemidji State University
53. *Sexual Education and Attitudes Towards Masturbation*
Presenter(s): Jannine Ray
 Faculty mentor: Eric Sprankle
 Institution: Minnesota State University, Mankato
 Department/program: Psychology
54. *The Economics of Being Human*
Presenter(s): Jed Eix
 Faculty mentor: Tonya Hansen
 Institution: Minnesota State University Moorhead
 Department/program: Economics
55. *Heron Colony Population Monitoring: Blue Lake, MN Valley National Wildlife Refuge (1997-2014)*
Presenter(s): Jenifer M Zinsmaster
 Faculty mentor: Lisa Tracy
 Institution: Inver Hills Community College
56. *Seeking Common Ground: A Content Analysis of the Abortion Debate on Pro-Con.org*
Presenter(s): Jennifer Knecht
 Faculty mentor: Lee Vigilant
 Institution: Minnesota State University Moorhead
 Department/program: Sociology
57. *Functional Analysis and Paired Choice Assessments: Comparison and Behavior Intervention Planning*
Presenter(s): Jennifer Nelson
 Faculty mentor: Kathy Bertsch
 Institution: Minnesota State University, Mankato
 Department/program: Psychology
58. *Regulation of an Earthworm Eisenia fetida and the Regulation of its Nephridial Bacteria*
Presenter(s): Jeremy Balster
 Faculty mentor: Dorothy Wrigley
 Institution: Minnesota State University, Mankato
 Department/program: Biology



59. *Defining Faces for All Spaces*
Presenter(s): Jessa Roberts
Faculty mentor: Sheila Tabaka
Institution: Southwest Minnesota State University
Department/program: Theatre Program
60. *Moral Obligation and Charity*
Presenter(s): Jessica Hillesheim
Faculty mentor: Marilea Bramer
Institution: Minnesota State University Moorhead
Department/program: Philosophy
61. *Analysis of Hot Sauce Intensity by HPLC*
Presenter(s): John Craig
Faculty mentor: Noelle Beyer
Institution: Southwest Minnesota State University
Department/program: Chemistry
62. *What Effects do Oil and Natural Resource Deposits Have on Local and State Economies?*
Presenter(s): John Tingley
Faculty mentor: Kara Lindaman
Institution: Winona State University
Department/program: Political Science
63. *The Causes and Results of Binge Drinking at Bemidji State University*
Presenter(s): Jordan Johnson
Faculty mentor: Troy Gilbertson
Institution: Bemidji State University
64. *The Violation of Human Rights with the Privatization of Water*
Presenter(s): Jordan Pinneke
Faculty mentor: Andrew Conteh
Institution: Minnesota State University Moorhead
Department/program: International Studies
65. *A Simple Method to Estimate the Molecular Volumes of Small Organic Molecules by Infrared Spectroscopy*
Presenter(s): Joseph Rumreich
Faculty mentor: P Asoka Marasinghe
Institution: Minnesota State University Moorhead
Department/program: Chemistry
66. *How to Profit from Initial Public Offerings: Increasing the Probability of Success in an Insider's Game*
Presenter(s): Joseph Wittwer
Faculty mentor: Vadhindran Rao
Institution: Metro State University
Department/program: Finance
67. *Aphid Sequences*
Presenter(s): Josiah Reiswig & Samuel Erickson
Faculty mentor: Adam Goyt
Institution: Minnesota State University Moorhead
Department/program: Mathematics
68. *P for Patriarchy, and Other Gender Role Equality Issues in 2014*
Presenter(s): Julia Fong
Faculty mentor: David Higgins
Institution: Inver Hills Community College
69. *Examination of Human Embryonic Kidney Cells and Cardiomyocytes Using Glass Microcarrier Beads and Scanning Electron Microscopy*
Presenter(s): Kaekook Sim
Faculty mentor: Marilyn Hart, Geoffrey Goellner & Michael Bentley
Institution: Minnesota State University, Mankato
Department/program: Biology
70. *Effects of Strontium in the Bone Density of Mice*
Presenter(s): Kali Trukk, Ashley Ledding & Rachel Ledding
Faculty mentor: Michael Bentley
Institution: Minnesota State University, Mankato
Department/program: Biology
71. *Media Effects on Perception of Rights*
Presenter(s): Kara Frink
Faculty mentor: Troy Gilbertson
Institution: Bemidji State University
72. *Tracking the Development of Students' Academic Self-Efficacy in a Psychology Research Methods Course: Statistical and Methodological Design Skills*
Presenter(s): Kathryn Humphrey, Benjamin Ardner & Mikell Hebig
Faculty mentor: Moses Langley
Institution: Minnesota State University, Mankato
Department/program: Psychology
73. *The Influence of Dante on Last Judgment Scenes before the Counter Reformation*
Presenter(s): Kathryn Jacobson
Faculty mentor: Holly Silvers
Institution: Minnesota State University Moorhead
Department/program: Art and Design

74. *Measuring the Gender Gap: Are Women More Likely to be Democrats or Republicans?*
Presenter(s): Kayla Anderson
 Faculty mentor: Kara Lindaman
 Institution: Winona State University
 Department/program: Political Science
75. *Technique for Staining of the Myelin-like Sheath in Earthworms*
Presenter(s): Kayla Brown
 Faculty mentor: Angela Hahn
 Institution: Bemidji State University
76. *Practicing Easy Onset for Optimum Retention: A Study of Treatment Efficiency*
Presenter(s): Kayle Lyon & Melaine Day
 Faculty mentor: Sarah Smits-Bandstra
 Institution: St. Cloud State University
 Department/program: Communication Sciences and Disorders
77. *Sexual Assault on College Campuses*
Presenter(s): Kelsey Goeman
 Faculty mentor: Amy Sullivan
 Institution: Minnesota State University, Mankato
 Department/program: Gender and Women's Studies
78. *Reading of Original Works*
Presenter(s): Kelsey Jennen
 Faculty mentor: Marianne Zarzana
 Institution: Southwest Minnesota State University
 Department/program: Creative Writing Program, English
79. *Variations in Monopoly with Nonstandard Dice*
Presenter(s): Kevin Brom & Jenna Hilborn
 Faculty mentor: Joyati Debnath
 Institution: Winona State University
 Department/program: Mathematics and Statistics
80. *Climbing Mali Kuthea: The Mapping of Mbui Nzau*
 Presenter(s): Kirsten Goldstein
 Faculty mentor: Mark Lawrence
 Institution: Bemidji State University
81. *Mechanical Removal of Juniper and its Effects on Plant Diversity*
Presenter(s): Kyle Van Vleet
 Faculty mentor: John Krenz & Chrisophter Ruhland
 Institution: Minnesota State University, Mankato
 Department/program: Biology
82. *Determination of Protein Interactions in the Formation of Tubular Structures Using the Model Organism C. Elegans*
Presenter(s): Laura Chopp
 Faculty mentor: Kelly Grussendorf
 Institution: Minnesota State University, Mankato
 Department/program: Biology
83. *A Behavioral Analysis of Fathead Minnow "Pimephales promelas" Breeding Patterns When Exposed to Anastrozole and Bisphenol-A*
Presenter(s): Lina Wang
 Faculty mentor: Shannon Fisher & Steven Mercurio
 Institution: Minnesota State University, Mankato
 Department/program: Biology
84. *Soft Communication Skills*
Presenter(s): Logan Medin & Abdullie Abdullah
 Faculty mentor: Matt Durand
 Institution: Minnesota State University, Mankato
 Department/program: Construction Management
85. *Effects of Ultraviolet Radiation on the Brown Midrib Mutation in Sorghum Bicolor and Zea*
Presenter(s): Maegan Eatwell
 Faculty mentor: Christopher Ruhland
 Institution: Minnesota State University, Mankato
 Department/program: Biology
86. *Jekyll and Hyde: Classic Literature Adapted for the Stage*
Presenter(s): Maggie Olson
 Faculty mentor: Laura Fasick
 Institution: Minnesota State University Moorhead
 Department/program: Theatre Arts
87. *Is Sustained Attention Important for the Testing Effect?*
Presenter(s): Maria Almoite & Jessica Kay
 Faculty mentor: Karla Lassonde
 Graduate student mentor: Shelby Afflerbach
 Institution: Minnesota State University, Mankato
 Department/program: Psychology
88. *Improving Students' Self-Efficacy in a Psychology Research Methods Course: An Enactive Mastery Experiences Approach*
Presenter(s): Maria Almoite, Zoe Martin, Monica Gee & Jared Goelz
 Faculty mentor: Moses Langley
 Institution: Minnesota State University, Mankato
 Department/program: Psychology



89. *Smart Kid Stereotypes - How being a gifted child shapes life*
Presenter(s): Mariah Schumacher
Faculty mentor: David Higgins
Institution: Inver Hills Community College
90. *Access to Mental Health Services in Winona County*
Presenter(s): Marina Faber, Kaitlyn Dreblow, Leah Koehler, Dennis Santiago & Sierra Hase
Faculty mentor: Peter Sternberg
Institution: Winona State University
Department/program: Health, Exercise, and Rehabilitative Science
91. *Stress and Alcohol Consumption in College Students: Do tangible and belonging support matter?*
Presenter(s): Marion Danh
Faculty mentor: Amanda M. Brouwer
Institution: Winona State University
Department/program: Psychology
92. *Temperature Dependence of the Dynamic Modulus of Pure Ni*
Presenter(s): Matt Levine
Faculty mentor: Michael Lund
Institution: Winona State University
Department/program: Composite Materials Engineering
93. *Economic Crisis Voting in Greece and Germany: Testing Theories of Sociotropic and Checkbook Voting*
Presenter(s): Matthew CoenTuff
Faculty mentor: Patrick Donnay
Institution: Bemidji State University
94. *Power and Politics: Yuan Shikai's (1859-1916) Role in the 1898 Reform*
Presenter(s): Maureen Hukill
Faculty mentor: Henry Chan
Institution: Minnesota State University Moorhead
Department/program: History
95. *Practicing Pausing for Optimum Transfer: A Study of Treatment Efficiency*
Presenter(s): Megan Kallinen
Faculty mentor: Sarah Smits-Bandstra
Institution: St. Cloud State University
Department/program: Communication Sciences and Disorders
96. *3D Printing of Stainless Steel for Engineering Applications*
Presenter(s): Michael Doyle
Faculty mentor: Kuldeep Agarwal
Graduate student mentor: Rachel Burlet
Institution: Minnesota State University, Mankato
Department/program: Manufacturing Engineering Technology
97. *Use of Cast Nets and Seine Hauls to Estimate Abundance of Age-o Yellow Perch*
Presenter(s): Michael Vaske
Faculty mentor: Andrew Hafz
Institution: Bemidji State University
98. *Implementing Culturally Responsive Teaching in the Elementary Classroom*
Presenter(s): Michelle Burke & Gretchen Hinrichs
Faculty mentor: Lori Piowlski
Institution: Minnesota State University, Mankato
Department/program: Elementary & Early Childhood Education
99. *Is there an Association between the Mosquitos and Type 1 Diabetes?*
Presenter(s): Michelle Moran, Katie Owen, Alesha McPhail & Gayani Gamage
Faculty mentor: Marina Cetkovic-Cvrlje
Institution: St. Cloud State University
Department/program: Biology
100. *Reading Like a Heroine: The Secret to Self-Education in "Northanger Abbey"*
Presenter(s): Morgan Marcotte
Faculty mentor: Tammy Durant
Institution: Metro State University
Department/program: English
101. *Quick Mobile Apps with HTML5*
Presenter(s): Muhammed Saho
Faculty mentor: Andrew Chen
Institution: Minnesota State University Moorhead
Department/program: Computer Science and Information Systems
102. *The Effect of Artificial Sweeteners on the Expression of microRNAs in Rat Kidneys*
Presenter(s): Natalie Young
Faculty mentor: Theresa Salerno
Institution: Minnesota State University, Mankato
Department/program: Chemistry

103. *Biofilm Formation by Escherichia coli csgA and fimA mutants*
Presenter(s): Nichole Snyder & Sean Willaert
 Faculty mentor: Timothy Secott
 Institution: Minnesota State University, Mankato
 Department/program: Biology
104. *Organizing for Justice: The Critical Constructivist Approach to Reproductive Justice*
Presenter(s): Ommolayo Ogunnowo, Elaine Lossing, KariAnn Uecker & Natasha Theissen
 Faculty mentor: Laura Harrison
 Institution: Minnesota State University, Mankato
 Department/program: Gender and Women's Studies
105. *When Will the U.S. Stock Market Stabilize?*
Presenter(s): Pengyu Qian
 Faculty mentor: Erdenebaatar Chadraa
 Institution: Minnesota State University Moorhead
 Department/program: Mathematics
106. *Morphological and Molecular Barcode Characteristics of Parasites from Family Strigeidae Collected from Lake Winnibigoshish*
Presenter(s): Rachael Yates Swedberg & Yuko Nakamura
 Faculty mentor: Robert Sorensen
 Institution: Minnesota State University, Mankato
 Department/program: Biology
107. *Beowulf: Truth or Legend? An Archaeological Perspective*
Presenter(s): Rachel Munson
 Faculty mentor: Larry Swain
 Institution: Bemidji State University
108. *Guanine Nucleotide Exchange Factor Activity of the DHR-2 Domain in DOCK8 is Regulated by N-terminal Amino Acids*
Presenter(s): Rebecca Florke
 Faculty mentor: Michael Hamann
 Institution: Bemidji State University
 Department/program:
109. *Waste to Energy*
Presenter(s): Rebecca Newman
 Faculty mentor: Mahmoud AlOdeh
 Institution: Bemidji State University
110. *Social Welfare Policy Reform since the mid-1990s: Comparison of the United Kingdom and the Czech Republic*
Presenter(s): Rebekah Buege
 Faculty mentor: Tomasz Ingot
 Institution: Minnesota State University, Mankato
 Department/program: Political Science
111. *The Effects of Angling Pressure on Northern Pike Size Structure in Public and Private Lakes*
Presenter(s): Ryan Carrow
 Faculty mentor: Andrew Hafs
 Institution: Bemidji State University
112. *Materialism and its Effects on College Students Values*
Presenter(s): Ryan Olson
 Faculty mentor: Debra Peterson
 Institution: Bemidji State University
113. *Winona State University Student Approval of U.S. Drone Strikes*
Presenter(s): Samuel Bach
 Faculty mentor: Kara Lindaman
 Institution: Winona State University
 Department/program: Political Science
114. *Cell Phone Use in the Classroom: What Drives Mobile Phone Use and Potential Reduction Strategies*
Presenter(s): Samuel Maurice
 Faculty mentor: Kate Larson
 Institution: Bemidji State University
115. *Zero Waste: A Dream or a Reality*
Presenter(s): Sanjay Maharjan
 Faculty mentor: Mahmoud AlOdeh
 Institution: Bemidji State University
116. *The Effect of Bisphenol A (BPA) on the Expression of Aromatase B*
Presenter(s): Sara Sobota
 Faculty mentor: Theresa Salerno
 Institution: Minnesota State University, Mankato
 Department/program: Chemistry



117. *Detecting the presence of the chytrid fungus, *Batrachochytrium dendrobatidis* (Bd), in amphibians on the Inver Hills Community College campus*
Presenter(s): Sarah Hammarsten & Chad Schulze
Faculty mentor: Lisa Tracy
Institution: Inver Hills Community College
118. *Pick A Therapy...Any Therapy?*
Presenter(s): Sarah Jensen
Faculty mentor: David Higgins
Institution: Inver Hills Community College
119. *Extraction and Quantitation of Sudan Dyes in Spices Using High Performance Liquid Chromatography*
Presenter(s): Shemekia Higgs
Faculty mentor: Karyn Usher
Institution: Metro State University
Department/program: Natural Science
120. *The Importance of Human Animal Relationships*
Presenter(s): Stephanie Bove
Faculty mentor: David Higgins
Institution: Inver Hills Community College
121. *The Women Homesteaders of Swift County Minnesota*
Presenter(s): Steven McGeary
Faculty mentor: Joan Gittens
Institution: Southwest Minnesota State University
Department/program: History
122. *Alcohol Use During Pregnancy in Meeker County*
Presenter(s): Sumeet Gupta
Faculty mentor: Brenda Lenz, Vonna Henry & Mary Zelenak
Institution: St. Cloud State University
Department/program: Nursing
123. *Bahamian Climate Reconstruction: Fire History*
Presenter(s): Tashiana Osborne
Faculty mentor: Kate Pound
Institution: St. Cloud State University
Department/program: Atmospheric and Hydrologic Sciences
124. *How Differing News Media Frames Have an Impact on Public Opinion Towards Obamacare*
Presenter(s): Taylor Burdick
Faculty mentor: Patrick Donnay
Institution: Bemidji State University
125. *Establishment of Primary Neuronal Cultures for the Investigation of Neuronal Survival In Vitro*
Presenter(s): Taylour Hanson & Paul Creger
Faculty mentor: Rachel Bergstrom
Institution: Minnesota State University, Mankato
Department/program: Biology
126. *Calcium Hydroxovanadate Synthesis*
Presenter(s): Tigist Hunde
Faculty mentor: Lyudmyla Stackpool
Institution: Minnesota State University, Mankato
Department/program: Chemistry
127. *Practicing Pause for Optimum Retention: A Study of Treatment Efficiency*
Presenter(s): Tino Musemburi
Faculty mentor: Sarah Smits-Bandstra
Institution: St. Cloud State University
Department/program: Communication Sciences and Disorders
128. *Expanding Art's Audience*
Presenter(s): Tony Connors
Faculty mentor: Curt Germundson
Institution: Minnesota State University, Mankato
Department/program: Art
129. *The Effects of Various Video Game Genres on Cognition and Brainwaves*
Presenter(s): Travis Hensersky
Faculty mentor: Moses Langley
Institution: Minnesota State University, Mankato
Department/program: Psychology
130. *Can Perceptually Demanding Encoding Tasks Help Dissociate Recollection-based and Familiarity-based Recognition Memory?*
Presenter(s): Travis Hensersky
Faculty mentor: Moses Langley
Institution: Minnesota State University, Mankato
Department/program: Psychology

131. *Aspartame: What Dental Hygienists Should Know Before Recommending Sugar-Free Products*

Presenter(s): Trudy Koepsell

Faculty mentor: Kristi Frykman
Institution: Metro State University
Department/program: English

132. *Winona State University Students and County Elections*

Presenter(s): Veronica Colletti

Faculty mentor: Kara Lindaman
Institution: Winona State University
Department/program: Political Science

133. *An Economic Analysis of Housing Market Instability and Affordability in China*

Presenter(s): You Wang

Faculty mentor: Tonya Hansen
Institution: Minnesota State University Moorhead
Department/program: Economics



PRESENTATION #1

Katie Kotschevar

Effect of Student Loan Debt on Homeownership

Format: Oral Presentation

This paper examines how student loan debt affects the choice of purchasing a home or not at ages 25 and 30. I utilize the National Longitudinal Survey of Youth 1997 survey data. Using home ownership as a binary dependent variable, I employ a logistic regression of my student loan debt and other independent variables on homeownership. I find that student loan debt is insignificant to making a decision to purchase a home at ages 25 and 30. There is positive significance to being married and having children at both age levels and income at age 25. Race and living in the Midwest also proves positively on homeownership. Differences between those who do and do not own a home between ages 25 and 30 shows those who had homes experienced a greater increases in financial assets and income than those who didn't.

PRESENTATION #2

Abraham Hierlmaier

Recycling Project

Format: Oral Presentation

This presentation will be about how companies that throw away a lot of recyclable material should look into more sustainable practices. The presenter will give example from his current employer (restaurant). The reason for choosing this project is that he sees firsthand how much plastic and other recyclable material is tossed into the trash each day. During any given day as much as 15 garbage bags can be filled from this one restaurant. Although there is non-recyclable material in these bags, the majority of it is plastic and should be recycled. The project will look at the waste that is coming from the restaurant that he works at and finding out what can be recycled. After taking samples of the waste and figuring out how much of it could be recycled, he will contact local waste management facilities to find out how much it would cost to have a recycling dumpster brought in and compare the costs of having all the material in a waste dumpster to the cost of having a recycling dumpster.

PRESENTATION #3

Presenter(s): Alexander Weston

The Lynching of American Indians in Minnesota: A Case Study In Otherization

Format: Oral Presentation

The mid-nineteenth century in the United States saw a dramatic increase in the practice of lynching, defined as the illegal public execution of an alleged transgressor without trial by a group of people claiming to represent a community. In Minnesota, twelve out of the fifteen documented lynchings occurring between 1845 and 1875 targeted American Indians. I intend to demonstrate that this was due, in large part, to the way European American identity in mid-nineteenth-century Minnesota coalesced around opposition to American Indians as a threatening "Other;" a people seen as a counterimage to the values and lifestyles that European Americans associated with themselves. In Minnesota, centuries of stereotyping coupled with terrifying conflicts in 1857 and 1862 to create the perception that, collectively, all American Indians were a threat to European Americans. Lynching was an attempt to ward off this perceived threat and reinforce social norms by making an example of one individual. I intend to compare the ways in which different categories of people became "otherized" in the nineteenth century with the "otherization" of American Indians. This is an overlooked facet of an important topic in American and Minnesota History, and examining this particular pattern of violence should inform future explorations of European American relations with American Indians in nineteenth-century Minnesota, as well as shedding further light on the culturally universal process of "otherization."

PRESENTATION #4

Andrew Kenady

Yesterday, All My Problems Seemed So Far Away: Examining the Definition of Romanticism Through an Interpretation of William Wordsworth's "Ode: Intimations of Immortality"

Format: Oral Presentation

The Romantic genre lends itself to many varied interpretations, with one of the more prevailing inferences being that Romantic literature primarily is concerned with notions of the natural world. The intention of my essay is to refute this instance of surmised opinion and to illustrate that William Wordsworth and his Romantic literary cohorts were certainly intrigued by nature, not only for its splendor in itself but as a muse for intellectual stimulation and reflection. In Wordsworth's "Ode: Intimations of Immortality," the author examines the developmental process of sentimentality in life from the days of endless potential during adolescence to the refined, reflective maturity of an adult. Wordsworth creates natural metaphors to reflect the varied moods that coincide with the differing attitudes that accompany the various stages of life; using streams, meadows, and plains as an impetus for emotional, critical, and reflective considerations of one's time as human being on Earth. To read Wordsworth's "Ode" through the scope of it being musings on the natural world, that reading runs the risk of neglecting the captivating phenomena of each individual's capacity for perception and subjective opinion. Romanticism prizes the individual; their creativity, their genius, their emotions, and their sole experience of life. Wordsworth captures these beliefs deftly in his "Ode: Intimations on Immortality." Romantic literature doesn't seem to be a medium that is concerned with influencing opinion or dictating emotional states, rather, it is concerned with exploring the nature of individual perception and the nature of living life. Nature, an all-encompassing term that captures that totality of all things present on this earth, is found in Romantic poetry. However, it is best served as being a catalyst that spurs intellectual activity, and not as an over-arching theme that permeates all things Romantic.

PRESENTATION #5

Andrew Larson, Jessica Lindstrom, & Nikolai O'Hara

Do ecological rates in midges respond in predictable ways to temperature?

Format: Oral Presentation

We are studying how temperature influences ecological rates of larval midges, which are the most diverse and productive insect group in Arctic Alaska. Given the Arctic is warming faster

than other regions of the world, how temperature impacts their growth, development, and survival may be important. Using aquaria chillers and heaters, we were able to set up a gradient of temperatures ranging from 5°C to 30°C and assess how that impacts ecological rates of these animals. We tested arctic midge community response by incubating bulk sediments at different temperatures to see which species survived and/or grew. We also used the midge *Chironomus dilutus*, a common laboratory midge, to assess how temperature differentially impacts growth and survival. The Temperature Size Rule (TSR) suggests that development is more sensitive to temperature than is growth, and subsequently insects in colder environments are larger than those in more temperature environments. To test TSR, we used macrophotography to estimate size of animals after treatment. Development was measured as time-to-emergence. We anticipate our findings will lead to direct experiments on the metabolic effects related to temperature.

PRESENTATION #6

Andrew Nicholson & Cari Graber
Mapping the Spatial and Temporal Expression Pattern of Chst15 mRNA in the Cochlea of Euthyroid Mice Throughout Development

Format: Poster

Hypothyroidism is a state or condition in which there is an insufficient amount of thyroid hormone production. Pregnant women with hypothyroidism, or children born with congenital thyroid disorders, are known to suffer from developmental and neurological dysfunctions such as deafness or mental retardation. Research has pinpointed a cell-dense area in the cochlea known as the greater epithelial ridge (GER) as a major site of thyroid hormone action. This region has the highest concentration of thyroid hormone receptors in the developing cochlea, indicating it is a target of thyroid hormone signaling. Screening for genes that are responsive to thyroid hormone in the GER identified carbohydrate (N-acetylgalactosamine 4-sulfate 6-O) sulfotransferase 15 (Chst15) as a candidate for thyroid hormone receptor target gene. Interestingly, Chst15 was recently identified as one of several genes missing in a large

chromosomal deletion of a spontaneous deaf mouse line. Our research is aimed at mapping the spatial and temporal expression pattern of Chst15 mRNA in the cochlea of euthyroid mice throughout development and to determine whether the normal expression of Chst15 mRNA is disrupted following developmental hypothyroidism. To test this, we harvested cochlea from hypothyroid and euthyroid controls at postnatal days 1, 5, and 7. After cryosectioning, in situ hybridization, which detects the localization of mRNA in tissues, was completed. Preliminary results indicate that Chst15 expression decreases as development proceeds and that hypothyroidism delays this decrease. These results support Chst15's involvement in proper cochlear development and implicates Chst15 as a potential deafness gene misregulated in hypothyroidism.

PRESENTATION #7

Anthony Caron
The Wandering Fox

Format: Oral Presentation

In this presentation, the areas of over industrialization, materialism, and the inner working of the human mind are explored. I read numerous poems, stories, and articles about the issues and used their influence to write poetry, some of which can be related to a fox – subtlety, trickery, and wit. How these all work together in unison with one's conscience is the story of my work. How one feels about nature, beauty, morality, rebellion, and life are the thoughts and emotions displayed. The new age needs a voice and I have it.

PRESENTATION #8

Anthony Reffke
Nationalism and International Sport: German Soccer and the Reluctance to Show Pride

Format: Oral Presentation

International sports play an integral role in the global community. In many countries, international sporting events allow fans to show their national pride as they cheer for their home country. Even though it may seem harmless for the

fans, governments have been using international sports and the subsequent displays of nationalism as instruments to drive their political agendas. Historically, the German nation has experienced the ideology of socio-political movements used in the context of national sporting endeavors. Early in the 19th century, Turnvater Frederich Jahn started a gymnastic movement in order to strengthen and unify the German people in response to the Napoleonic occupation. In more recent history, this was particularly exemplified during the era of Nazi Germany through their soccer team. As one of the most popular sports in the world, soccer has been commonly used in this role as countries try to showcase their dominance on the global stage. As the master race, the German team was held to high standards while also receiving high levels of support. The extreme nationalism shown in regards to this team as well as the political movement resulted in a negative perception of German pride and the reluctance of the German people to display it. This research will examine the history of German soccer and politics as well as the negative repercussions faced due to the extremism leading up to its reemergence during the 2006 World Cup in Germany.

PRESENTATION #9

Ashley Forman
Media Influence on Body Image Perspectives: the Effects of Healthy Eating Identities and Restrictive Eating Patterns

Format: Poster

Sociocultural factors are associated with negative body image, poor healthy eating and weight management practices (Levine, 2000). Media influences, due to pervasiveness and reach, are a powerful transmitter of sociocultural ideals (Tiggemann, 2004). Fashion and beauty magazines are the largest proliferation of the thin ideal, with 94% of the covers portraying thin female models (Slater, 2012). Research has investigated media effects on body image and disordered eating, but how different genres of magazines affect women's eating body image perspectives is understudied. Therefore, we explored the relationships among magazines and women's body image perspectives (i.e., healthy eater identities and restrictive eating habits). Forty-six women, 18-39 years old (M=20.16, SD=3.71) completed a survey about healthy



eating identity, restrictive eating habits, and magazines consumption. Pearson correlations were performed to test the relationships among sociocultural factors, magazine consumption and body image perspectives. Media pressure was positively correlated with restrictive eating. Reading fitness and sports magazines were positively correlated with healthy eater identities. Reading beauty and fashion magazines were not correlated with restrictive eating habits or healthy eater identities. Contrary to our hypotheses fashion and beauty magazines were not associated with restrictive eating habits. Women recruited may have had a healthy eater identity prior to the study. Findings support previous research that media influence is associated with restrictive eating habits and add to the literature that a positive body image is associated with reading fitness magazines. Reading fitness magazines may expose women to body images that support a healthy eater identity.

PRESENTATION #10

Beau Roberts

Cost of Higher Education

Format: Poster

With the rising cost of college tuition, are students and graduates more likely to have a large amount of debt? I believe that because of the rising cost of higher education more and more students are unable to afford to pay for college. This means that they are forced to take out loans to cover the balance of their tuition, placing them in the hole before they can even graduate. I will be conducting my research through gathering information from other research and a survey of current students and graduates. At this point in my research I am finding that there is clear evidence that college students are very likely to be in debt by the time they graduate. The significance of this research is to show prospective students that college may not necessarily be the most ideal choice for post high school. With the amount of debt that will be accumulated from going to college they might be better served going straight into the work force.

PRESENTATION #11

Benly Larson

Discourse as a Solution to Problems of Self-Definition and Self-Expression in Invisible Man

Format: Oral Presentation

Twentieth-century African-American author Ralph Ellison identifies a “problem of language,” words causing “segregation” to take place, a “struggle over the nature of reality.” Structures outside some characters’ control cause an aesthetic problem of self-definition and self-expression in the texts by employing these structures as intermediaries through which to understand the characters. I provide a reading of Ellison’s novel *Invisible Man* that examines the points at which the narrator, in the act of retelling, comes to understand history discursively. I assess how the discourse of history qualifies this problem of self-definition and self-expression. By interacting with the discourse of history, the narrator not only self-defines and self-expresses on his own terms via narrative, but prioritizes the study of that “self” in relation to the historical discourse. Because *Invisible Man*’s narrator is able to define and express himself in relation to the larger discourse of history and not exclusively in terms of race, the implications of my findings are not merely aesthetic, but facilitate an alternate reading of the novel. The main character’s ability to define and express himself in terms of history prompts a critical consideration of the novel based upon the narrative constructions of identity, constructions defined beyond the taxonomies of racial identity.

PRESENTATION #12

Bibek Rai

Final Stages of the Sri Lankan War: A Journey to Unanswered Accountability

Format: Oral Presentation

Many serious violations of international humanitarian and human rights law occurred during the recent wars in the former Yugoslavia, Rwanda, Sierra Leone, Cambodia, and Liberia. Tribunals and special courts were established to provide universal jurisdiction to the helpless

victims in the response to the atrocities . Significant violations occurred during the “Sri Lankan Civil War”, which was fought between Government and Liberation Tigers of Tamil Ealam (LTTE). LTTE was formed in 1975, based in the northern and eastern Sri Lanka and led by Vellupillai Prabhakaran, demanding a separate state called Tamil Ealam. The government launched a massive military offensive in the LTTE held territories in January, 2008 which came to an end with the surrendering of LTTE in May, 2009. There are claims of war crimes and atrocities committed by the both sides during the final stage of the Civil War in 2009. The panel appointed by the Secretary-General of UN submitted a report after analyzing information from various sources, their allegations, characterizing the credible sources, and appraising them legally.

PRESENTATION #13

Bradley Nelson

Personality Differences in Knowledge of Social Issues

Format: Poster

Wars, economic issues, and government policies can have a huge impact on the daily lives of citizens. Why do some many of them lack knowledge about these social issues? Past research by Shepard and Kay (2012) suggest that complex issues lead to more trust in government, and an “ignorance is bliss” mentality. The present study looks at the connection between personality traits and ignorance of issues. Results suggest that Need for Cognition (NFC) and openness to experience can have an effect on an individual’s ignorance. However, further studies will need to be conducted to explore the link between personality traits and ignorance.

PRESENTATION #14

Brandon Richards & Josephine Nilsson
Ease of Selection and Task Switching

Format: Poster

People generally perform a task more slowly after the completion of some other task, rather than performing the same task (e.g., Kleinsorge, 2012; Leboe, Wong, Crump, Stobbe,

2008). This is known as task switching cost. This study manipulates the difficulty of tasks as well as frequency of switching between tasks. In this study participants did two tasks: either identify the larger of two numerals consisting of two digits each (magnitude) or identify which numeral was odd (parity). Participants were randomly assigned to do eight blocks of 40 trials that were either all the same task for that block or eight blocks; with 75 percent of the trials consisting of one task, and for the remaining trials within a block participants did the other task. To manipulate ease of task the numerals were presented in different hues. If the task was magnitude, the digit in the tens place was presented in red while the other digit was presented in black. If the task was parity, the digit in the ones place was presented in red while the other digit was in black. These differences in hue should have made the task easier than when all the digits in the numerals were the same hue. It is predicted the ease of task should not affect the amount of task switching cost as previous work in this lab has found. Implications for mechanisms for stimuli selection and response selection are discussed.

PRESENTATION #15

Breanna Ruud & Sami Ryan

Modifying practice and feedback schedules to improve transfer of “Easy Onset” in stuttering treatment

Format: Poster

Speech-Language Pathologists (speech therapists) and Audiologists (hearing professionals) are health care professionals that train clients with communication disorders (e.g., stuttering, stroke, Parkinson’s disease) to learn new skills. It is essential that clients also learn to transfer newly learned skills (use them independently out in the real world). There are several key principles that influence how well clients transfer new skills into everyday living situations, such as how and when to practice and how and when to provide feedback and reinforcement. The two types of feedback examined in this project were infrequent feedback (participants self-monitored their accuracy every ten trials) and frequent feedback (participants self-monitored their accuracy after every trial). The two types of practice examined

in this project were constant practice (the same ten phrases were repeated) or variable practice (ten different phrases were repeated). Results of experimental subjects will be analyzed to determine whether subjects who received infrequent feedback, and engaged in variable practice transferred the skill in a real life situation outside of the clinic week later, more successfully, than other subjects.

PRESENTATION #16

Brettany Warren

Isolation of Actin and Lumbrokinase Genes from the Common Earthworm

Format: Oral Presentation

The purpose of the experiment was to isolate the genes that code for the proteins actin and lumbrokinase from the earthworm *Lumbricus rubellus*. RNA was extracted from the ventral nerve cord after it was dissected from the worm. The RNA was then broken down into its cellular components. This was demonstrated by gel electrophoresis. When running these experiments, restriction enzymes were added to the solution. By adding the enzymes to the solution it made the DNA break apart at certain target sites and at a particular temperature. When it breaks apart it will anneal back together with the primer sequence transcribed into the protein. Once the gene is transcribed into the protein it can become subcloned and expressed.

PRESENTATION #17

Brittney Bunn & Youngshin Lee

Khan Academy: Free Education? It is about time!

Format: Oral Presentation

For this presentation, we will be introducing the Khan Academy. This organization is known for providing free educational resources online and has been helping students since 2006. In our presentation, we will discuss how the Khan Academy began and what it has been providing for students and educators. To illustrate how impactful this organization is on the classroom environment, we will show how this program has been successful in multiple school districts. We will demonstrate how this website operates and what it offers to the public. At the end of our presentation, we will

discuss how this program gives a glimpse into the future of the educational system.

PRESENTATION #18

Lindsay Hoffman & Symphony Moser

Modifying practice and feedback schedules to improve transfer of “Pause” in stuttering treatment

Format: Poster

Speech-Language Pathologists (speech therapists) and Audiologists (hearing professionals) are health care professionals that train clients with communication disorders (e.g., stuttering, stroke, Parkinson’s disease) to learn new skills. It is essential that clients also learn to transfer newly learned skills (use them independently out in the real world). There are several key principles that influence how well clients transfer new skills into everyday living situations, such as how and when to practice and how and when to provide feedback and reinforcement. The two types of feedback examined in this project were infrequent feedback (participants self-monitored their accuracy every ten trials) and frequent feedback (participants self-monitored their accuracy after every trial). The two types of practice examined in this project were constant practice (the same ten phrases were repeated) or variable practice (ten different phrases were repeated). Results of experimental subjects will be analyzed to determine whether subjects who received infrequent feedback, and engaged in variable practice transferred the skill in a real life situation outside of the clinic week later, more successfully, than other subjects.

PRESENTATION #19

Chantelle Koppe

Technique for Staining of the Myelin-like Sheath in Earthworms

Format: Oral Presentation

Not only are worms known for digesting dirt, but they are also famous for their unique regenerative properties. A previous study demonstrated that with certain enhancement factors, earthworms can regenerate 90% of nerve cells after injury. A form of myelin, a specialized sheath



comprised of cellular membranes that have an uncharacteristically high lipid to protein ratio, surrounds the main nerve cord in earthworms. Our project describes the creation and execution of a procedure involving cross section preparation, staining, and visual examination for the myelin-like sheath in earthworms.

PRESENTATION #20

Chelsea Conrad

High School Students Tell All: Analyzing Facebook Confession Sites

Format: Poster

Social media sites are gaining popularity, giving teenagers a venue to anonymously post secrets, rants, and insults. Recently, anonymous high school related Facebook confession sites have emerged. These sites, while not endorsed by the school, often contain the school's name, mascot and location creating a forum for anonymous social interactions among high school students. Facebook confession sites have gained attention over concerns about cyber bullying and the potential negative influence on the reputation of schools. The purpose of this study is to analyze the language of Facebook confession sites to determine the degree of positive and negative emotionality as well as to begin to understand the sudden popularity of anonymous high school social media sites. Facebook confession sites were gathered using key search terms and several common search engines. A list of fifty-four high school confession sites was created based on the criteria of having identifiable features of a specific United States high school. From this list, twelve confession sites were randomly selected for the analysis of posts occurring during a common 3 month time period. The Linguistic Inquiry and Word Count software program was used to code Facebook posts on twelve emotionality categories: swear words, social, work, positive emotion, negative emotion, anxiety, anger, sadness, body, health, sexual, and death. Results reveal the degree to which anonymous social media posts include negative versus positive emotionality and the degree to which these posts receive "likes" from other Facebook users.

PRESENTATION #21

Chelsea Palmer

The New Wave

Format: Oral Presentation

Before the New Wave hit, films were created for mere amusement and relied on imagery. Astruc writes, "It must be understood that up to now the cinema has been nothing more than a show". He also notes, "After having been successively a fairground attraction, an amusement analogous to boulevard theatre, or a means of preserving the images of an era, it is gradually becoming a language". Previous films were created purely to entertain audiences. Films were not known for showing individual expression or thought; instead, films were created for the sake of the image, and they relied on the use of images and symbols to make suggestions. An image of leaves falling off a tree might be used to suggest time passing. Silent films tried to express thought through image as well. Thus, films relying purely on the use of imagery to evoke emotion and thought to entertain audiences began to develop into a new language. Astruc wanted film to become a means of writing that is as flexible and subtle as written language and could become a new way for expressing thought. Utilizing camera-stylo, the director becomes the writer of the film, rather than trying to find ways to illustrate a scene. Thus, Astruc's idea was for cinema to become a cinema of authors; of creators who "wrote" in images.

PRESENTATION #22

Chizoba Adizue & Colin Teichert

Effects of Temperature on Snail Growth

Format: Poster

The purpose of our experiment was to determine if there was a positive, negative, or no correlation between size of an organism and the temperature of its habitat. Snails were grown at 10 different temperatures ranging from 8oC to 33oC, and their lengths were measured using digital calipers. We hypothesize according to metabolic theory that snail size and population density will be higher in colder temperatures. We used non-linear regression to test these hypotheses.

PRESENTATION #23

Chong Vang

An Oral History and Auto-ethnography of Sexuality Privilege and Gender Inequity in LGBTQ Hmong America

Format: Oral Presentation

Within the last decade, issues of Lesbian, Gay, Bisexual, Transgender, and Queer (LGBTQ) individuals have surfaced the Hmong American community. This research project is an oral history and auto-ethnography with two parts. The first part examines the formation of Hmong American LGBTQ identities through the experiences of migration and immigration, acculturation, and participation in capitalism. This demonstrates how LGBTQ identities are created and adopted into mainstream Hmong American LGBTQ communities. The next part takes a feminist intersectionality approach to examine the experiences whereby sexual privilege is formed in Hmong American LGBTQ communities that have been conditioned by historic gender inequity within Hmong American community. This second angle of examination will not only critique the role of privilege in Hmong LGBTQ sexuality, but the role in which gender inequity conditions critical consciousness of LGBTQ identities in Hmong America. Results may indicate a varying consciousness of sexual identity from experiences of gender inequity. In the future, we hope that this research will inspire emerging Hmong American LGBTQ activists, organizers, artists, and scholars to build towards a holistic and critical consciousness of what their own sexual and gender identity means to them; and to further contribute their own knowledge and experiences of intersectionality as Hmong American LGBTQ individuals towards the scholarship of Hmong Trans* and Queer Feminism and Critique.

PRESENTATION #24

Christy Ohlrogge

The Monster of Body Ideals

Format: Oral Presentation

A topic of growing importance in society today is the dissatisfaction women have with their bodies. This very issue is the driving force behind the

diet industry and also kills many women every year in the form of eating disorders. Are women the monsters, perhaps society, or the ideal model of a woman itself? Society has a funny way of unraveling itself if you look closely. By applying works such as Jeffrey Jerome Cohen's "Monster Culture (Seven Theses)" an answer may be revealed. Is beauty really a myth, or a subjugation tool? See how the idea of beauty has changed over time and just how relevant it is to women and their trouble with bodily satisfaction.

PRESENTATION #25

Clare Palmer

50 Shades of Pop Culture's Betrayal: A critique of the portrayal of BDSM in popular culture

Format: Oral Presentation

Fifty Shades of Grey has received an enormous amount of attention and criticism. It has been shunned for depicting taboo sexual practices, chastised for its negative portrayal of such interests, and praised for opening discussions about alternative sexual behaviors. Investigating themes in approximately thirty books, movies, and television shows, I analyze portrayals of bondage, discipline, domination-submission, and sadism-masochism. These portrayals provide individualistic, shame-based explanations for BDSM encounters that fall into at least one of four models I have found: the trauma model, the self-degradation model, the predatory model, and the fantasy model. The trauma model uses some form of trauma, often in childhood, to explain an interest in BDSM. The self-degradation model involves the character belittling, demonizing, or demeaning his or her interest in BDSM. In the evil/predatory model, the BDSM practitioner is depicted as a predator, a rapist, or evil. Within the fantasy model, a world different from our own is created in which BDSM is acceptable or normal behavior. Locked into a worldview that considers BDSM as a family of deviations that require accounts, popular novels, movies, and television shows perpetuate stigmas that attach to BDSM. They do not open spaces for considering BDSM as desirable, healthy, or acceptable sexual behavior. Through the use of these models and existing research and literature, I explore the history of BDSM and the negative attitudes toward it, the inaccuracies of the portrayal of BDSM in popular culture, and the possible effects of the continuation of the stigma.

PRESENTATION #26

Constance Anderson

Active Chemical Display Cases: Doing Experiments in Public

Format: Poster

Display cases are an opportunity to engage students, faculty, staff and visitor at Minnesota State University Moorhead in academic programs such as chemistry. Although static informational displays are valuable for some purposes, they will rarely engage passersby in a substantive way and after a few viewings are ignored. This work is directed toward making display cases that will actively draw the attention of observers and demonstrate a variety of chemical principles through experiments that are actively taking place in public display cases. The chosen experiments have unique safety, kinetic, and visual requirements due to being performed in public display cases, but a broad range of chemical concepts can be demonstrated with some relatively simple apparatus. Active chemical displays also serve as a science outreach activity that will encourage observers to think about science in a positive way and will increase the visibility of the Department of Chemistry & Biochemistry.

PRESENTATION #27

Curtis Payne

Synthesis of a Chemotherapeutic Drug: An Analogue of Goniiothalamine

Format: Poster

Cancer is the leading cause of death in world. Goniiothalamine, a natural product from the dried stem bark of an Asian shrub of the genus Goniiothalamus, has shown bioactivity to induce apoptosis in cancer cells. The bioactivity of this molecule is hypothesized to be due to interaction with thiol residues. One mechanism involves its binding of glutathione, a natural antioxidant found in all cells. By inhibiting glutathione, a high concentration of free radicals develops, inducing apoptosis in cancer cells. The second mechanism involves the inhibition of nuclear factor-kappa B, a transcription factor in cell proliferation. The inhibition prevents cancer

cells from dividing. Using a four step sequence of published reactions, a novel gamma-lactone analogue of goniiothalamine has been prepared, altering the endocyclic double bond in the lactone core of goniiothalamine with an exocyclic double bond. The alteration is hypothesized to allow the compound to react more rapidly with thiol residues and increase its cytotoxicity towards cancer cells. The final product was characterized by GC/MS and ¹H NMR. The overall yield of the procedure is 36%, corresponding to a 77.7% yield per step in the sequence. Further work includes testing the newly synthesized analogue against cancer cell lines and comparing its cytotoxicity with goniiothalamine.

PRESENTATION #28

Dakota Aberle, Bailey Holzbauer & Tara Andresen

Title: Hitting the Target

Format: Oral Presentation

A marketing plan enables a business owner to understand the target market for a business/product as well as the firm's competitive position in the market. This presentation provides an overview of the research required to prepare an effective marketing plan for a client who is the owner of a start-up custom clothing business. The presentation describes how this business can profile its target market, determine tactics to reach the target market, and differentiate itself from the competition by researching geographic, demographic, psychographic and behavioral trends. Effective research strategies for acquiring information about the marketing mix (product, place, price and distribution) variables and the SWOT analysis are presented.

PRESENTATION #29

Daniel Kilkelly

Reading of Original Works

Format: Oral Presentation

Sometimes I feel like there are holes in my head, where everything practical and worldly flows out. I can't remember dates and times. Occasionally, even names escape me. My grandma says this



is because I spend more time inside of my head than out of it. The real world is fictional, and fantasy is reality. It's not just a bad habit of daydreaming, however. Inside my head, I can make sense of the overwhelming world we live in. I have to falsify it in order to make it real. For the most part, I do this through fiction. I've always been lax about worldly concerns and ruthless in my writing. My grade point average could be better, but I set out to write one million words a few years ago and achieved that goal last year. I can't stay interested in a real job for more than a few months, but I've written ten novels. The world outside of me just won't sit still, and I feel as though it is my duty to document it. Of course, sheer word count is not enough. My greatest discoveries in my writing career have been the ways in which I humble myself. I can display my cleverness, or swallow my pride and try minimalist writing. It's not about showing off vocabulary, it's about translating feelings to paper. And through the language of emotion, maybe I can show the world what I see.

PRESENTATION #30

Danielle Hron

Structural Factors Affecting the Rate of the Reaction Between Singlet Oxygen and Proteins

Format: Poster

Reactions between singlet oxygen and proteins are important to many biological processes including cell death. To study aspects of this process, reactions between singlet oxygen and free amino acids are examined. Under visible light irradiation, Rose Bengal (RB) photosensitizes singlet oxygen production and furfuryl alcohol (FFA) is used as a molecular probe to measure singlet oxygen concentration. As irradiation proceeds, the concentration of FFA diminishes due to the reaction with singlet oxygen. When added to the irradiated solution, an amino acid that reacts with singlet oxygen will compete with FFA, and the rate of FFA consumption will decrease. Using a kinetic model, rate constants for the reactions between amino acids and singlet oxygen are determined. A similar approach is used to study the reaction between singlet oxygen and intact proteins including lysozyme, bovine serum albumin, and glyceraldehyde 3-phosphate dehydrogenase. These proteins were selected

based on the location of amino acid residues that potentially react with singlet oxygen, allowing a test of the hypothesis that "accessible" residues located on the exterior surface of the protein are more reactive than residues that are "buried" in the interior of the protein structure. The measurement results are compared to predictions based upon a computational model of the relative accessibility of each residue within the protein structure.

PRESENTATION #31

Diana Chambers

NHL Players and Their Home Countries

Format: Poster

Founded in 1917, the National Hockey League (NHL) is one of the oldest professional sports leagues. Based in Canada and the United States, the NHL has always had an international history; however, players have not always been from Canada or the United States. In response to forces of globalization, player membership in the NHL has changed over time. Considering larger geo-political circumstances such as WWII, and the Cold War, along with the growing popularity of the sport, I embark to analyze the changing trends surrounding the source countries for NHL players. Which factor (WWII or the Cold War) has had the most significant impact on NHL player origins?

PRESENTATION #32

Dulanjani Rajaguru

Exploring the Role of miRNA 393 in Soybean Stress Response

Format: Poster

MicroRNAs (miRNA) are small non-coding RNAs about 22 nucleotides in length which function in regulating gene expression. miRNAs regulate protein synthesis by degrading mRNA, blocking initiation of protein synthesis and causing translocation of mRNA to processing bodies. Growing evidence indicates that miRNAs regulate a variety of biological processes. In plants, they regulate leaf, flower, root and vascular development as well as stress and defense responses. It has been predicted through

sequence comparison studies that soybean miRNAs are associated with biological and environmental stress. In this project the role of miR393 in soybean stress responses was explored. Soybean (Edamame, "BeSweet 292") were grown in a growth chamber. Plants (18 days post emergence) were treated to drought conditions, treated with abscisic acid (a hormone associated with root stress) or auxin (a hormone stimulating root growth) and control treatment. Root tissue was harvested, frozen in liquid nitrogen. Small RNAs were isolated using a mirVana microRNA isolation kit. cDNA copies of the purified miRNA were prepared by reverse transcription using a microRNA Reverse Transcription kit. Quantitative Polymerase Chain Reaction (Q-PCR) was used to measure levels of mir393.

PRESENTATION #33

Dylan Brenner

A Case for American Ethnocentrism

Format: Oral Presentation

In my research, I would like to uncover what makes Americans think they're better than anyone else through a Sociological perspective. I will look through a number of different lenses and resources to find the cause of our ethnocentrism. I first want to look at how American children are socialized in school up until the time they graduate from High School. What we are taught in school can drastically effect our view on ourselves and others. Furthermore, I'd like to examine what cultural values or customs we share as a country. By looking at our culture I hope to find how we socialize our youth, intentionally or otherwise, into believing we are superior to other nations or people. Lastly, I'd like to examine our ethnocentrism from a historical perspective. By doing so, I hope to answer what events in our past has led to the belief in our superiority. By looking at culture, politics, education, history, and various other perspectives, I hope to uncover the roots of what causes American ethnocentrism.

PRESENTATION #34

Ellie Mausbach

Using Heart Rate as a Measure of Attention During a Visual Scanning Task: A Replication Study

Format: Oral Presentation

A cognitive lab was set up at BSU to replicate a previous study (Coles, 1972) that supported the use of heart rate as a measure of attentional processes during a visual scanning task. Participants were recruited from undergraduate psychology classes and were asked to view a letter matrix and scan line-to-line to find oddball letters (e's and b's in a matrix predominantly made of a's). Participants viewed eight sets of three trials each: a blue screen where the participant was inactive, a set of instructions that the participant read, and the letter matrix to be scanned. There were two sets of similarly worded instructions: one asked the participant to use a clicker whenever an oddball letter was found, the other asked the participant to keep a running count in their head and report the number of oddball letters found at the beginning of the following trial. We expect to find results similar to the original study: heart rate will decrease and be lower during the letter matrix screens compared to the instructions and the blue resting screen; heart rate will be lower during the tasks with oddball letter e compared to b. Analysis of results is in progress.

PRESENTATION #35

Ellie Mausbach

The Dark Triad of Personality: A Review of Literature

Format: Oral Presentation

A literature review of the scholarly work surrounding the development and support of the "Dark Triad" of personality - Machiavellianism, narcissism, and psychopathy.

PRESENTATION #36

Emily Bublitz

Move It and Lose It: Can Reframing Exercise Increase One's Intentions to Workout?

Format: Poster

Many studies have investigated the effects of mentally reframing the time that is required to an exercise program in order to increase a person's willingness to try a certain exercise regime. The proposed research seeks to investigate if individuals who are reframed and view exercise in smaller time increments (such as minutes per day versus hours per week) will report greater intentions to exercise than those who view exercise in larger time increments. College undergraduates will be given reframed information to study the effect of temporal framing on exercise intentions. If supported, these results will help reframe exercise duration and increase a person's willingness to try a workout program, which may lead to a healthier lifestyle.

PRESENTATION #37

Emily Malterud

Assessing the Perceptions and Realities of Crime on Bemidji State University Campus

Format: Oral Presentation

This project assesses the perceptions of crime through a non-randomized convenience sample of on-campus undergraduates on the Bemidji State University campus and compares it to actual crime rates reported in the Bemidji State University Campus Crime and Fire Safety Report. The research presented is posted focusing on the lifestyles-routine activities theory, and examines the affects collegiate demographics and experiences of students have on their perceptions of crime. The perceptions reveal freshmen to be the most vulnerable of students, while the residential areas to be the most vulnerable area. The conclusion of the research contains recommendations for ensuring continued low perceptions of crime throughout the student body.

PRESENTATION #38

Emma Phelps

Comparison of Protein Expression in Soy Bean by Two-Dimensional Electrophoresis

Format: Poster

Soybeans are an important crop that not only provide nutrition for humans and livestock, but are also a potential source of biofuels. However, it is estimated that 70% of yields are lost due to unfavorable environments. Studying the defensive mechanisms of soybeans may help increase yields. Soybeans produce enzymes called lipoxygenases, which are involved in the synthesis of molecules, such as methyl jasmonate that respond to stress. These proteins were the focus of our study. In this project, a two-dimensional gel electrophoresis method was developed to monitor changes in the expression of soybean leaf proteins in response to stress factors. This method allowed proteins to be separated based on their isoelectric point, or the pH at which they have no net charge, and their molecular weight. Edamame "Be Sweet 292" beans were grown to the trifoliolate stage and treated at about three weeks post-emergence. The plants were treated either by wounding with forceps, exposure to methyl jasmonate, or both. Control plants received no treatment. The leaf tissue was harvested 24 hours after the initiation of treatment and frozen with liquid nitrogen. The protein extraction procedure was modified from Sarma et al. (2008 Analytical Biochemistry, 379, 192-195). Proteins were separated by isoelectric focusing on BioRad IPG strips with a pH range of 3-10. They were then separated by SDS electrophoresis using Criterion XT 12% Bis-Tris gels and stained with gel code blue. This project will focus on the visualization of high molecular weight proteins such as lipoxygenase.

PRESENTATION #39

Eric Barnes

Earthworm Remyelination Gene Expression Analysis

Format: Oral Presentation

Earthworms possess the unique ability to regenerate after they have been cut or damaged, but it is unknown if their regenerative capabilities



include remyelination. The myelin sheath surrounds the spinal cord and plays a major role in the signaling of the nervous system. What is also unknown about remyelination in earthworms and other animals is which proteins are involved in the process. Through the dissection of earthworms, cDNA synthesis, and qPCR techniques we intend to identify proteins that may play a role in remyelination.

PRESENTATION #40

Erin Haugen

Gender and Public Opinion: Do Men and Women Have Differing Opinions on the Gender Wage Gap?

Format: Poster

This study examines the correlation between gender and opinions on the gender pay gap. The literature addresses the gender gap in political ideologies and the effects of gender policy on these ideologies (Norrandar and Wilcox, 2008). Additionally, previous work, which addresses feminist theories of male-female attachment and resulting political attitudes, show that while some women may be less influenced to consider gender equality an important piece of their ideologies due to their reliance on men, this is not always the case (Bolzendahl and Olafsdottir, 2008; Kane, 2006). This leads to the hypothesis that women are more supportive of pay equity than men. Through survey research, one hundred Winona State University students are asked on their attitudes toward equal pay for equal work. The findings show that among Winona State University students, women are more likely than men to favor equal pay for equal work. This is significant because while gender policy is an increasingly salient issue, public opinions regarding equal pay for equal work are unclear, especially amongst politically under-mobilized college students.

PRESENTATION #41

Erin Reys

Exploring African-American Spirituals Through the Lenses of the Three Major Sociological Perspectives

Format: Poster

African-American spirituals are songs that speak of the history and the suffering of a people. Through rhythm and song, the African-American slaves of our nation's past rebuilt their broken identity, resisted oppression, and left their own mark on the world of music. The importance of these spirituals was examined in light of the three major sociological perspectives: structural-functionalist, conflict, and symbolic interactionist theories. Six works of literature on the subject were reviewed. Based on this literature: 1) African-American spirituals served a number of functions in various societal institutions (functionalism), 2) they were used as a tool to resist the oppression that African-American slaves faced (conflict perspective), and 3) spirituals stood as a means to preserve the social identity of those who sang them (symbolic interactionism).

PRESENTATION #42

Grant Bingham

An Analysis of Bemidji State University's Tree Inventory and Distribution

Format: Poster

On July 2, 2012 a severe storm of straight-line winds ripped through the City of Bemidji leaving widespread damage in its wake. The campus at Bemidji State University was highly impacted by this event and many trees were lost. This poster presentation will examine BSU's current tree inventory utilizing spatial analysis, enumeration and point-pattern analysis. The study will show existing patterns, age estimations and a general overview of the species distribution. In addition, this research will provide a dataset that may be utilized by future students at Bemidji State University.

PRESENTATION #43

Gregory Reimer

Title: Stock Recovery after Negative Press

Format: Poster

When companies experience a negative event that is covered by the media, it often follows that the stock price falls as a result. The drop in stock price is a partial reaction to the negative news.

This study seeks to examine how long it takes for the stock price to recover from a negative event. Data for this study is limited to US based companies that have experienced negative press between 2004 and 2014, and includes the marginal stock price and media coverage regarding steps taken to recover from the negative incident. The data was analyzed using the technical analysis approach. Preliminary results suggest that the stock price changes are directly and significantly related to the amount of media coverage received, which is related to the company's reputation prior to the incident, the social and environmental cost of the incident and whether class-action lawsuits were filed following the incidents.

PRESENTATION #44

Hank Deuermeyer, Michael Grinsteiner & Chad Whaylen

Synthesis, Crystallization and Time of Flight Measurements of Rubrene Analogs

Format: Poster

Rubrene and rubrene analogues are organic semiconductor materials that are being investigated for applications in the field of opto-electronics. Due to their high charge carrier mobilities in the solid state, they have potential application in device such as transistors, solar cells and LEDs. Rubrene analogues are created by making changes to the structure of the parent molecule, rubrene. Modification to the molecular structure of the parent molecule can result in changes in the solid state physical properties of the material. Rubrene analogues are synthesized through an easily varied procedure that can produce a range of analogues. Characterization of the analogues was done using melting point and FTIR-ATR analysis. Single crystals of the analogue were grown using a physical vapor transport technique. The electrical properties of these single crystals will then be investigated to gain insight into fundamental principles controlling the charge transport in these materials. This insight will then be used to design new materials with properties optimized to the application.

PRESENTATION #45

Hannah Beeler

Evaluation of Land Snail Populations in Deciduous and Coniferous Forests in the SMSU Wildlife Area

Format: Poster

Terrestrial gastropods in Minnesota are an understudied organism but are important in nutrient uptake from soil that gets passed on to organisms higher in the food chain. Land snails can be ecological indicators as well as agricultural pests. Populations vary with habitat and vegetation types but no data exists for snail populations in southwest Minnesota. Deciduous and coniferous forest snail populations in the SMSU wildlife area were sampled by collecting five replicates of soil and leaf litter (~ 3L each) from each forest. Snail species and density were compared and showed both greater number of individuals and number of species in the deciduous forest (696 individuals and 11 taxa) compared to the coniferous forest (13 individuals and 2 taxa). Ninety-seven percent of snails were from four taxa and most shells were less than 5mm in size. This research adds important information on the distribution and occurrence of land snails in southwest Minnesota.

PRESENTATION #46

Hayley Guevara

Subjectivity of Morality in "De Monfort"

Format: Oral Presentation

Many critics assess Johanna Baillie's work *De Monfort* and reduce it to simply an amoral play that celebrates sin without enforcing consequences and upholding morality. However, through the vehicle of dialogue and specific stage directions, Baillie emphasizes the subjectivity of morality. Moreover, Baillie illustrates that morality, and moral actions, are shaped and influenced specifically in the domestic sphere. My presentation examines *De Monfort*'s inability to demonstrate agency over his actions, specifically relying on his sister Jane as a moral compass. I'll research this topic by performing a close reading of Baillie's text to see how she uses characters and their words to transform and manipulate De

Monfort. Moreover, I will reveal the effectiveness of Baillie's "closet drama" which allows the audience to view secondary characters at a more intimate level, yielding an understanding of how *De Monfort* is being provoked into committing an evil act, and conversely, is being persuaded not to. By performing a close analysis of *De Monfort* and other characters, I will have a better understanding of the effectiveness of Baillie's chosen vehicle, (the closet drama, meant to be read in private versus performed on stage) and how it allows a more subjective interpretation of one of the most complex aspects of life—morality.

PRESENTATION #47

Hayley Hilfer, Beth Anderson & Kelsey Ihringer

The role of attachment in facial emotion scanning patterns of infant-mother dyads

Format: Poster

The ability to read emotional expression is essential to establishing and maintaining relationships. Several studies have investigated a connection between attachment style and the ability to interpret emotion on faces. This study has currently collected data on 14 mother-infant dyads to examine a possible relationship between attachment styles and the ability to interpret facial expressions of emotion. Infants ages five-to seven-months-old and their mothers viewed facial expressions (anger, sadness, happiness and neutral) while their gaze was recorded using infra-red eye tracking. The mothers' parental and romantic attachment styles were calculated using two surveys. It is predicted that dyads with insecure attachment styles will show a different pattern of face scanning compared to dyads with secure attachment styles. In particular, insecure attachment may be related to an avoidant style of gaze to negative or threatening facial expressions. These results may have important implications for the study of attachment, especially the emotional development of infants.

PRESENTATION #48

Hui Tung Chan

The Cultural Heritage of China- Beijing Opera

Format: Oral Presentation

I am an international student from Hong Kong. Studying Theatre Arts at MSUM is harder than I think. However, I had a lot of chances in class to exchange my home theatre culture to my fellow classmate and professors here. And I want more student at MSUM to know more about the Cultural Heritage of China, Beijing Opera. I am going to do an informative speech on the topic. I will do research basic on internet credible resources and the help from my advisor. I hope my presentation can give audiences a better general idea of Beijing Opera. I am sure I will be benefit in this project as I will know more about Beijing Opera than I did before the presentation. Also I hope local student will get a chance to know the other side of China by coming to my presentation.

PRESENTATION #49

Iwnetim Abate

Fabrication of Counter Electrodes for Microprobe Impedance Measurement

Format: Oral Presentation

A major obstacle to the study of fundamental properties of candidate materials for solid oxide fuel cell (SOFC) cathodes is the morphological complexity of the electrode-electrolyte interface. This complexity prevents a true determination of the catalytic mechanisms. Using well-defined electrode geometries, it is possible to quantify the relative density of two-phase boundary sites to three-phase boundary sites, and so by varying the pattern used to generate the electrode geometry we can determine the primary pathway. Toward this goal, we first made porous composite cathodes of Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}O_{3-δ} (BSCF) +Ag or SrCo_{0.9}Nb_{0.1}O_{3-δ} (SCN) +Ag for impedance measurements of well-defined microelectrode SOFCs. Porosity, friability, adhesion to the substrate 's surface, thermal stability and electrochemical properties of the porous films were investigated by optical microscopy and AC impedance spectroscopy (ACIS). Next, we studied whether a chemical reaction occurs between the high-performance cathode material, SCN, and the most conventional electrolyte material, Yo_{0.16}Zr_{0.84}O_{1.92} (YSZ). The conditions that favor the reaction are also determined using X-ray diffraction (XRD).



PRESENTATION #50

Jacob Carpenter
Taxing The Sick

Format: Poster

For my study I will be looking into the Minnesota Health Care Provider Tax, better known as the sick tax, which is a 2% tax imposed on the health care providers based on medical services paid out of pocket by patients or through their insurance providers. This money is supposed to be used to fund the Minnesota Care Program, but the money may be allocated elsewhere. I am specifically interested in the dental field, because while job shadowing many dentists told me that if they only saw patients on this type of health care they would go out of business. I am also curious to know why so many Minnesotans don't receive adequate dental care with all the money that should be available. I will collect data on how much dentist pay into the program, how many Minnesota Care patients they see, and how much the State of Minnesota reimburses procedures.

PRESENTATION #51

Jacob Clauson
Civil War Medicine

Format: Oral Presentation

The focus of my presentation looks at the evolution of medicine during the Civil War. By looking at how battlefield medicine was used, and the changes that were made in the years preceding the Civil War, one can come to understand how these advances saved many lives during the war. The presentation follows the story of the First Minnesota Regiment through the Battle of Gettysburg and considers the various injuries they would have sustained. It then delves into the wounds that soldiers would have most likely suffered and each of the procedures that would have been performed on the various soldiers from the First Minnesota Regiment to mend those injuries.

PRESENTATION #52

Jake Paulson
Isolation of Actin and Lumbrokinase Genes from the Common Earthworm Lumbricus rubellus

Format: Oral Presentation

The purpose of the experiment was to isolate the genes that code for the proteins actin and lumbrokinase from the earthworm *Lumbricus rubellus*. RNA was extracted from the ventral nerve cord after it was dissected from the worm. The RNA was then broken down into its cellular components. This was demonstrated by gel electrophoresis. When running these experiments, restriction enzymes were added to the solution. By adding the enzymes to the solution it made the DNA break apart at certain target sites and at a particular temperature. When it breaks apart it will anneal back together with the primer sequence transcribed into the protein. Once the gene is transcribed into the protein it can become subcloned and expressed.

PRESENTATION #53

Jannine Ray
Sexual Education and Attitudes Towards Masturbation

Format: Poster

The long-standing social stigma surrounding masturbation has led to its prohibition from being included in public school curriculum as a healthy sexual practice. Furthermore, not only is masturbation a healthy sexual practice for the individual, research has demonstrated masturbation to be helpful in treating sexual dysfunctions for couples. Therefore, if the topic of masturbation is included in comprehensive sexual education as a healthy sexual practice, it may promote sexual health among individuals both intra- and interpersonally. The present study recruited from a convenient sample from a medium sized state university in the upper Midwest. Participants completed two surveys, administered through an online data collection platform. The first survey, Attitudes Towards Masturbation, is an established measure with sound reliability and validity, which assessed

the participants' comfort and beliefs about masturbation. The second survey was created specifically for this study and assessed the type of sexual education (comprehensive versus abstinence) received at home and in formal school settings. It is predicted that participants who received positive masturbation education (at home or at school) will have more positive attitudes toward masturbation than participants who received negative or no masturbation education. The results of the study indicate that positive masturbation education at school does not predict positive attitudes toward masturbation. However, positive masturbation education at home predicted positive attitudes for obtaining birth control and what masturbation is. Also, positive masturbation education at home during high school predicts positive attitudes. Lastly, positive masturbation education at school during high school does not predict positive attitudes.

PRESENTATION #54

Jed Eix
The Economics of Being Human

Format: Oral Presentation

The relationship between the abstract definition of economics and its use in our daily lives is unclear. This study draws upon literature from diverse schools of thought to investigate the culture, psychology, and physiology of economics. This approach encompasses the use of existential and postmodern philosophy, behavioral psychology, and new developments in economic thought and social theory, including semi-autobiographical literature and storytelling. In response to the question, "Why, as a human, do anything at all?," this research considers the role of economics and what it means to be an economist in-place with the empirical reality of being in the world.

PRESENTATION #55

Jenifer M Zinsmaster
Heron Colony Population Monitoring: Blue Lake, MN Valley National Wildlife Refuge (1997-2014)

Format: Poster

The Great Blue Heron Colony at Blue Lake in the Minnesota Valley National Wildlife Refuge has been monitored by students from Inver Hills Community College, North Hennepin Community College and Normandale Community College from 1997-2014. The USFWS is interested in knowing the overall trends of this population and in determining whether or not the birds returned this year. Students monitored the population by counting nests in the non-breeding season. Eight zones were surveyed and mature and starter nests were tallied. The peak of population size occurred in summer of 2000 with 1325 nests counted. Our data supports the observation that no Great Blue Herons returned in the summer of 2013. Of 77 trees that were surveyed in both 2013 and 2014, 60 fewer nests were found in 2014. The abandoning of the colony could be due to the influence of the Blue Lake Water Treatment Plant, climate changes or the establishment of a Bald Eagle nest within the Great Blue Heron territory in summer of 2012.

PRESENTATION #56

Jennifer Knecht

Seeking Common Ground: A Content Analysis of the Abortion Debate on Pro-Con.org

Format: Oral Presentation

In the past two years, the number of abortion laws introduced in state legislatures across the United States has increased at a rapid pace. A content analysis was conducted on responses to the question "Should Abortion Be Legal?" at the website ProCon.org to see what commonalities exist, if any, between the two groups and between members of the same group. The results showed that anti-abortion commenters used more personal and emotive language in responding to the question, while pro-choice commenters used language that was more distancing and objective. Consistent with previous research on the demographics and likely educational attainment of the two sides, less complex language usage was more common among those opposed to abortion as was religious sentiment, while pro-choice respondents had more complex language usage and, more often, correctly used grammar and punctuation. Abortion is an emotional issue for people on both sides of the debate, and both pro- and anti-abortion commenters are highly

invested in the issue. The source of emotional response was often tied to the respondents' belief in the personhood, or lack thereof, of the fetus and to personal identification of the respondent with the fetus. As a result of the sharp differences between the two groups and the extreme polarization of their views, any compromise between the two sides is unlikely.

PRESENTATION #57

Jennifer Nelson

Functional Analysis and Paired Choice Assessments: Comparison and Behavior Intervention Planning

Format: Poster

Functional Behavior Assessment (FBA) is a method of assessment used to develop behavior interventions for individuals with challenging behavior. There are several methods of collecting FBA information. Functional analysis (FA) is a process of validating the function of behavior through experimental analysis. While FA is considered a gold standard, its limitations including requiring specialized training and problem behaviors to occur and be reinforced during assessment. Paired-choice (PC) assessment, another FBA method, is used to assess children's preference for reinforcers and various classroom arrangements. It is hypothesized that PC assessments are teacher friendly, require little training to implement and lead to accurate hypothesis of function of behavior. The purpose of this project is to validate if PC assessments accurately hypothesize function of behavior as compared to FA. Additionally the project assessed whether either method aided teachers in better understanding function of behavior. Four preschool-age children with problem behaviors were assessed using both FA and PC methods. After each assessment, teachers completed a checklist about function of behavior. Assessment data was then used to hypothesize function. PC allowed for making hypothesis about function of behavior while FA was less useful as few problem behaviors occurred resulting in inconclusive FA results. Teacher report showed that teachers consistently identify multiple functions of behavior. This research provides preliminary evidence suggesting that PC assessments may aid in intervention planning for students with

mild problem behaviors and that teachers need further training in distinguishing gain from escape functions even when they are part of FBA assessments.

PRESENTATION #58

Jeremy Balster

*Regulation of an Earthworm *Eisenia fetida* and the Regulation of its Nephridial Bacteria*

Format: Poster

The purpose of this study was to examine two mechanisms the earthworm *Eisenia fetida* might use to regulate its symbiotic bacterium *Verminephrobacter*. *Verminephrobacter* resides in the nephridium of the earthworm which is an osmoregulatory organ. The first possible way of regulation is through the extrusion. Fluorescent in situ hybridization (FISH) was the main assay used to mark the bacteria and a fluorescent microscope was used to detect the bacteria. When earthworms are shocked coelomic fluid is extruded through pores. The fluid and bacterial cells were collected and stained with a specific DNA probe for the symbiont and examined with a fluorescent microscope. The other possible way is through the earthworms' phagocytic cells. Some of the phagocytic cells are also extruded after shock. To test whether the bacteria were phagocytized, the symbionts are mixed with coelomic cells. Then interactions with the coelomic cells were examined using both gram staining and the FISH technique. Finally, for viability, the bacteria mixed with coelomic cells were plated and compared to bacteria numbers without coelomic cells. Results are still underway and will be presented.

PRESENTATION #59

Jessa Roberts

Defining Faces for All Spaces

Format: Poster

What many people do not realize is that what they are seeing when they go to a theatrical performance is only the tip of the iceberg. There is a lot of things that happen before the performance even starts. One of these things



is applying makeup. This poster examines the differences between Crème and Cake makeup. In theatre, the size of the space you are working in effects the makeup designer's choices. In a large theatre, crème makeup helps to make more of the actor's features stand out and is a better reflector of light. If a play is performed in a smaller house where the audience is closer, cake makeup is the better choice. It is much smoother and looks more natural. The application of each of these makeups is also important. Crème is applied directly to the face and needs to be powdered so it will not smear or wipe off. Cake makeup on the other hand is activated with water and dries quickly. This poster will also take you through the process of applying basic highlight and shadow with each of the different types of makeup. After having read this poster, you will be able to differentiate the use of each makeup and know the basic application of each.

PRESENTATION #60

Jessica Hillesheim
Moral Obligation and Charity

Format: Oral Presentation

We live in a time in which many people are struggling to meet the basic necessities of life. Because of this struggle, the topic of charity has been brought to the forefront of our concerns. The purpose of this presentation is to express the concern of charity as a moral obligation to citizens at large, both geographically distant and on a local scale. Morally speaking, this means we must pay special attention to the welfare of those geographically distant, and in dire need of assistance, instead of simply focusing our attention on those in need who are geographically close to us. I will be contrasting Kantian and Utilitarian ideas on the subject, and I conclude that both will favor a form of developmental aid above traditional charity methods. This conclusion is required by the Kantian idea of Justice, and Mill's Greatest Happiness Principle.

PRESENTATION #61

John Craig
Analysis of Hot Sauce Intensity by HPLC

Format: Poster

8-Methyl-N-vanillyl-6-nonenamide, commonly known as capsaicin, is the primary capsaicinoid found in chili peppers. It is responsible for the heat of the flavor, which has been widely measured using the Scoville scale, wherein a panel of human testers reports the heat of pepper extracts dissolved in a sugar water solution. The Scoville test is highly subjective, and thus is being phased out in favor of more precise high performance liquid chromatographic (HPLC) analysis. The purpose of this research was to develop a procedure for analyzing capsaicin concentrations across multiple store brand hot sauces using HPLC in a student laboratory setting. Using a Waters Corporation procedure as a baseline, an effective extraction method and HPLC analysis program were developed. The clear, consistent results and the short HPLC run time make this a suitable experiment for a biochemistry lab course. Analyzing materials that are real-life products makes the experiment more interesting to students, and the experiment gives students valuable hands-on experience with an important analytical technique in chemistry and biochemistry that is frequently used in scientific laboratories.

PRESENTATION #62

John Tingley
What Effects do Oil and Natural Resource Deposits Have on Local and State Economies?

Format: Poster

This project evaluates the effects oil and natural resource deposits have on local and state economies. I hypothesize that counties in the Top 10% of oil production will have higher median household incomes than counties that are not in the Top 10% of oil production. The process of which I will go by is looking at median household family income for these counties using Federal Reserve data, census data, and state economic data sources. I will find that counties in the Top 10 % of oil production on

average will have a higher median household family income than counties that do not. This is important because it will dismiss the natural resource curse (Peach, Starbuck 2013) at the county level. The natural resource curse is an effect where having an abundance of a resource is negatively related to economic well-being in that area (Peach, Starbuck 2013).

PRESENTATION #63

Jordan Johnson
The Causes and Results of Binge Drinking at Bemidji State University

Format: Oral Presentation

The aim of this study was to examine the causes and results of binge drinking amongst the undergraduate population at Bemidji State University. This was a qualitative study, and it was conducted through interviewing twenty students in the Hobson Memorial Union who volunteered to participate in the study. The researcher in this study aimed to find many possible causes of binge drinking, but has hypothesized that binge drinking in the university's undergraduate population was mainly due to binge drinking being a cultural norm amongst that population. In respect to the results of binge drinking, he hypothesized that the main negative result of binge drinking would be that of lowered academic performance. In addition to these hypotheses, the researcher will aim to find alternative causes and results of binge drinking in order to grasp a better understanding of the issue.

PRESENTATION #64

Jordan Pinneke
The Violation of Human Rights with the Privatization of Water

Format: Oral Presentation

With the issue of human rights coming into the global spectrum, it is important to analyze what rights all people are entitled to. A newly declared human right by the United Nations is the right to water. This is being jeopardized daily with the privatization of fresh water sources for transnational corporation use. Since

these transnationals are denying locals fresh, inexpensive water, they are therefore violating a basic human right and should be persecuted for their actions. This presentation takes an in-depth look into the examples of current water rights violations and what needs to be done to ensure that every person on Earth is entitled to such a basic human necessity as water.

PRESENTATION #65

Joseph Rumreich

A Simple Method to Estimate the Molecular Volumes of Small Organic Molecules by Infrared Spectroscopy

Format: Poster

The IR spectra of solutes in solution obtained with a pure solvent as the background would have negative peaks at frequencies where solvent absorbs IR radiation. The intensity of such negative peaks are proportional to the total solvent volume displaced by the solute molecules and therefore to the molecular volume of the dissolved solute. A correlation plot between the intensity of the negative peaks vs. theoretically calculated molecular volumes of the solutes was generated with a correlation coefficient of 0.9680. The correlation plot was employed to predict the theoretical volume of some model compounds. The predicted molecular volumes using the observed negative peaks of the solvent generated from solutions of small model molecules from the correlation plot was within 95% of the theoretically calculated molecular volumes.

PRESENTATION #66

Joseph Wittwer

How to Profit from Initial Public Offerings: Increasing the Probability of Success in an Insider's Game

Format: Oral Presentation

Profiting from Initial Public Offerings of Common Stock (IPOs) has long been considered an insider's game, but many retail investors are still willing to invest in these stocks shortly after the smart money has already taken their profits and gone home. Unfortunately, for every offering like Google where post-offering investors are

able to share in profit, there are many others that collapse in value after institutional investors take their profits. Using ten years of 3rd quarter IPO data from 2000-2009, this paper will explore whether it is more profitable to buy a "winning" IPO after a good first day, or whether buying a first day "loser" might be the better choice. The dependent variable will be the return on investment from the second day to the fifth month, day one return, one month return and offering amount will be independent variables. The strategy tested by the model calls for exited the IPO position five month returns after the offering in order to avoid a potential decrease in the stock's value when the underwriters and company insiders are allowing to sell shares after the six month lockdown period.

PRESENTATION #67

Josiah Reiswig & Samuel Erickson

Aphid Sequences

Format: Oral Presentation

The Fibonacci sequence is a well-known sequence in mathematics. This sequence was created in attempt to count the number of rabbits that could hypothetically reproduce each month with some given assumptions about the rate at which the mother rabbit reproduces and some additional restrictions. Aphids are insects that have very complex breeding patterns. Some Aphid species reproduce asexually and can have their spawn reproducing before they are born. Assuming that aphids live forever, we wish to know the number of aphids alive after a given number of time periods. We find and give a proof of a recursive relation for this generalized Fibonacci sequence. We use this relation to find a generating function. We also consider when the aphids are mortal.

PRESENTATION #68

Julia Fong

P for Patriarchy, and Other Gender Role Equality Issues in 2014

Format: Oral Presentation

The purpose of my research is to take a look at popular social media websites, and literature to

examine why we still live in a patriarchy society. Through my research I will explain what a patriarchal society is and how we can take small steps everyday to ensure that gender equality becomes ingrained in our society along with the importance of teaching young children how to appropriately treat both sexes. I will also examine why patriarchy is harmful in our modern day and time.

PRESENTATION #69

Kaekook Sim

Examination of Human Embryonic Kidney Cells and Cardiomyocytes Using Glass Microcarrier Beads and Scanning Electron Microscopy

Format: Poster

Alterations of sarcomeric proteins lead to disruption of myofilaments and are associated with hypertrophic cardiomyopathy. We have identified a genetically altered mouse strain with an elevated level of actin associated protein and are characterizing the nature of the hypertrophy by examining the cultured cells on glass microcarrier beads using Scanning Electron Microscopy (SEM). Beads provide a surface for cell growth and division and subsequent analysis of myocyte morphology. This study requires the establishment of primary embryonic cardiomyocyte culture which is difficult to establish. Therefore in initial studies to acquire the necessary tissue culture skill, we cultured Human Embryonic Kidney (HEK) cells. Confluent HEK cell cultures were established and the cells used to plate collagen coated dextran microcarrier beads (60-87 μ m) using varying bead concentrations. The cells were plated at low density, incubated at 37°C for four days in the presence of 5% CO₂. The cells, attached to the microcarrier beads, were preserved by fixation in 2.5% glutaraldehyde and visualized using SEM. The shape, size, and filopodia of the HEK cells were characterized, demonstrating the feasibility of this technique. We are currently establishing primary cell cultures of mouse embryonic cardiomyocytes, from both wild type and genetically altered mice with known sarcomeric disarray. The individual myocytes will be analyzed for alterations at the cellular level.



PRESENTATION #70

Kali Trukk, Ashley Ledding & Rachel Ledding

Effects of Strontium in the Bone Density of Mice

Format: Poster

Dietary strontium is readily incorporated into bone tissue of rodents. In prior studies dietary strontium has been shown to inhibit calcium metabolism and has further been shown to prevent osteopenia in ovariectomized rats. In the present study, we evaluate changes in bone density of mice receiving low calcium diet and strontium chloride in the drinking water. The study includes 14 of male mice. A surgical procedure was performed to remove the testes from all of the mice through two small incisions in the scrotal area. The mice were put under anesthesia using isoflurane gas and received 0.02 ml dosage of Rimadyl post-surgery to help with pain. The surgery followed our Institutional Animal Care and Use Committee approval guidelines. All of the mice are weighed by group on a weekly basis to document weight gain and consumption of water and chow. After two months of the water and diet regimen the mice will be euthanized by carbon dioxide inhalation and the long bones will be dissected for analysis with a JEOL 6510 scanning electron microscope (SEM) equipped with a Thermo Noran silicon-drift energy dispersive spectroscopy (EDS) system. This system provides a means to measure strontium, calcium, phosphorous, and other mineral elements in bone tissue. We anticipate finding strontium incorporation and increased bone density in the mice using the Strontium Chloride and low calcium water and food regiment.

PRESENTATION #71

Kara Frink

Media Effects on Perception of Rights

Format: Oral Presentation

The purpose of this study is to determine the effects that viewing crime-related media has on students' perception of their rights within the criminal justice system. This study also aims to identify factors besides media that

affect perception of rights and to determine to what extent media and extraneous factors affect perception of rights. The research method employed was single interviews done using a nonrandom sample. The hypothesis being tested is that increased viewing of crime-related media will correlate to increased perception of knowledge of rights with a decrease in actual knowledge of rights; participants who view more crime-related media will think they know more while actually knowing less correct information. The findings did not support the hypothesis. Rather, a low overall knowledge of rights permeates all levels of media exposure, with those who do not engage in much media having a realistic understanding of how much they know, and those with low amounts of previous experience with the criminal justice system underestimating their knowledge.

PRESENTATION #72

Kathryn Humphrey, Benjamin Ardner & Mikell Hebig

Tracking the Development of Students' Academic Self-Efficacy in a Psychology Research Methods Course: Statistical and Methodological Design Skills

Format: Poster

The authors assessed students' academic self-efficacy for fundamental research skills five times throughout a psychology research methods course. Data were collected from seven sections across two semesters and three instructors. Students showed statistically reliable gains in self-efficacy for methodological design, interpreting statistics, and using SPSS.

PRESENTATION #73

Kathryn Jacobson

The Influence of Dante on Last Judgment Scenes before the Counter Reformation

Format: Oral Presentation

This paper focuses on the relationship between Dante Alighieri 's Divine Comedy and Last Judgment scenes from Italy as they developed before the Counter Reformation 's censorship of the book. The works of Giotto, Giovanni

di Paolo, Luca Signorelli, and Michelangelo are all considered as they incorporate Dante 's work in various ways. Cross-Disciplinary research between the fields of Art History and Literature are important in revealing the way Dante 's audiences might have viewed and understood both the paintings and the literature in the centuries following the Divine Comedy 's publication. Rather than looking directly at illustrations of the Divine Comedy, the examination of Last Judgment scenes by artists who were influenced by or familiar with Dante 's work, provides a different perspective of how ordinary people viewed and processed images that were normally only available in expensive codices for the elite. Especially enlightening are the presence of Classical characters in medieval art and the evolution of nude figures in Last Judgment scenes from being relegated to the damned and then spreading up into the elect after the Divine Comedy was published.

PRESENTATION #74

Kayla Anderson

Measuring the Gender Gap: Are Women More Likely to be Democrats or Republicans?

Format: Poster

It has been shown that predictors of political affiliation strength are three of the Big Five personality traits: extraversion, agreeableness, and openness (Gerber, 2012). It has also been shown that women tend to score higher in all five of the Big Five personality traits except openness (Herbert, 2013). The findings of these two studies are the basis of this study's hypothesis. The hypothesis of this study is that women will have a stronger political affiliation than men. In addition to these two studies, there have been numerous others that have examined the relationship between political affiliation and other factors including class identification (Murphy, 1961), discrimination (Torre, 1947), and religion (Hadden, 1963). This study seeks to investigate whether gender has a statistically significant relationship with political affiliation and reject the null hypothesis. After being approved by the IRB through an expedited review, the data for this study was collected from Winona State Students using a survey. Data include demographic information (gender, age,

race) as well as political affiliation, and strength of political affiliation. After data collection, a Pearson's correlation was run to determine which factors had the strongest relationship and, of those, if any relationships are significant. Data was also tested for causality through a bivariate data analysis and descriptive statistics. These findings are important because they would provide politicians with valuable information for who to aim their campaign efforts at in order to be most successful.

PRESENTATION #75

Kayla Brown

Technique for Staining of the Myelin-like Sheath in Earthworms

Format: Oral Presentation

Not only are worms known for digesting dirt, but they are also famous for their unique regenerative properties. A previous study demonstrated that with certain enhancement factors, earthworms can regenerate 90% of nerve cells after injury. A form of myelin, a specialized sheath comprised of cellular membranes that have an uncharacteristically high lipid to protein ratio, surrounds the main nerve cord in earthworms. Our project describes the creation and execution of a procedure involving cross section preparation, staining, and visual examination for the myelin-like sheath in earthworms.

PRESENTATION #76

Kayle Lyon & Melaine Day

Practicing Easy Onset for Optimum Retention: A Study of Treatment Efficiency

Format: Poster

Speech-Language Pathologists (speech therapists) and Audiologists (hearing professionals) are health care professionals that train clients with communication disorders (e.g., stuttering, stroke, Parkinson's disease) to learn new skills. It is equally important for clients to retain (remember) skills in the long term. There are several key principles that influence how well clients remember new skills, such as how and when to practice and how and

when to provide feedback and reinforcement. The two types of feedback examined in this project were infrequent feedback (participants self-monitored their accuracy every ten trials) and frequent feedback (participants self-monitored their accuracy after every trial). The two types of practice examined in this project were constant practice (the same ten phrases were repeated) or variable practice (ten different phrases were repeated). Results of experimental subjects will be analyzed to determine whether subjects who received infrequent feedback, and engaged in variable practice remembered how to perform easy onsets one week later more accurately than other subjects.

PRESENTATION #77

Kelsey Goeman

Sexual Assault on College Campuses

Format: Oral Presentation

This research project is the culmination of interviews, scholarly sources, magazine articles and various books regarding the incidence of sexual assault on college campuses. This also contains findings on how various U.S. universities have implemented sexual assault awareness campaigns and what methods they employ to alleviate the widespread social problem of sexual assault. This research project will contain information that will help other colleges successfully implement their own sexual assault prevention/rape culture campaign based on the success of other projects. Also addressed are the reasons for why such campaigns were founded, if it was entirely motivated on feminist activism or was in response to the university mishandling incidences of sexual assault.

PRESENTATION #78

Kelsey Jennen

Reading of Original Works

Format: Oral Presentation

I, at one point, believed that literature was unimportant and served no purpose to the human race. It doesn't feed anybody, clothe anybody, or quench thirst. It doesn't build houses or pave roads or transport goods. But

reading opens doors inside the mind, doors that you maybe didn't know were there, doors you can't close once opened. Reading alters perception, and perception shapes experience. Experience shapes who you are, and who you are determines what you do and how you live and how you see. I have read enough literature—fiction and nonfiction—that has changed me in some way. So if reading can change who I am and how I see things, then it must be able to change others as well. Writing serves the purpose of communicating, and communication isn't specific to intelligent life. Animals have their way of communicating, as do plants. Communication is what keeps us in sync with one another. I don't write because writing is my purpose in life. I write because it is the most effective way that I know how to communicate with other human beings. So if I can do that just by broadening someone's imagination, or by inspiring someone, or even by making someone laugh, then that's enough for me.

PRESENTATION #79

Kevin Brom & Jenna Hilborn

Variations in Monopoly with Nonstandard Dice

Format: Poster

Monopoly is a fairly standard game that most people know how to play. It is a game that children play with their parents. But how would the game play differ if something other than the standard pair of 6 sided dice were used. Monopoly has rules for when a player roll doubles. What if the numbers on the dice change without changing the probability of the sum of the two dice? This is what will be discussed in this paper, how using Sicherman Dice and other nonstandard dice would affect the outcome of games, specifically Monopoly. This research will include: standard dice, the original Sicherman dice as well as two new sets of dice that have the same properties of Sicherman dice except that they include either a 0 or negative numbers on some or all the faces.



PRESENTATION #80

Kirsten Goldstein

Climbing Mali Kuthea: The Mapping of Mbui Nzau

Format: Poster

Sacred spaces are important to the cultural identity of the people of Mbui Nzau Sublocation, Kenya. Most often water sources or locations of spiritual concentration, these sites appear to be organized in hierarchies of importance and connection according to people interviewed in Mbui Nzau's villages in the summers of 2011 and 2013. While our understanding of these hierarchies remains incomplete, their existence demonstrates how Mbui Nzau people's acknowledgement and use of such sites depends on not only their absolute location but also their social functions. In order to develop our understanding of the local social systems we must map the surrounding area. By creating a first ever base map complete with roads, streams, homes, topographic information, and our sites of interest we have the potential to motivate the people of Mbui Nzau to use organized water and wood conservation practices compatible with their lifestyle.

PRESENTATION #81

Kyle Van Vleet

Mechanical Removal of Juniper and its Effects on Plant Diversity

Format: Poster

The increase in density and distribution of juniper (*Juniperus* spp.) in sagebrush communities throughout the Western United States, primarily as a result of fire suppression and historic over-grazing, has raised concerns among land managers and ranchers due to the detrimental effects of juniper on livestock forage species, and wildlife habitat. Juniper may dominate sagebrush communities because it may decrease understory plant cover and is more proficient in accessing deep soil waters than common competitors in the area. The main objective of this study was to examine how removal of juniper by mechanical means may affect species richness and abundance of

forbs in the immediate surrounding area. We estimated species richness and abundance of forbs in three treatments: live juniper, removed juniper (stump present with masticated juniper materials), and non-juniper (no live juniper tree or stump present). Removed juniper sites had 62% more species than live sites ($p < 0.001$), and 21% more species than non-juniper sites ($p = 0.001$). Abundance of forbs in live juniper sites was 54% lower than removed juniper sites ($p < 0.001$), and 63% lower than non-juniper sites ($p < 0.001$). Some related research supports our findings, however previous work also shows that understory responses and successional patterns following mastication of juniper may be highly site specific and governed by a number of factors, such as soil characteristics, seedbed composition, pretreatment site diversity of forbs, means of removal, and more. Understanding of successional patterns, plant community dynamics and long-term trajectories in regards to removal of juniper by mastication is crucial for long-term management planning.

PRESENTATION #82

Laura Chopp

Determination of Protein Interactions in the Formation of Tubular Structures Using the Model Organism C. Elegans

Format: Oral Presentation

Tubular structures in animals are incredibly diverse and important. The human body is full of tubular structures, for example, the digestive system, the urinary system, and the vascular (blood supply) system. In a cancerous environment, tumors require an ample supply of oxygen, and they get this oxygen by forming new blood vessels through a process known as angiogenesis. Preventing tumor angiogenesis has been the focus of numerous studies, but to do this we first need to know how tubular structures are formed. If the blood supply to the tumor is cut off, then the tumor cannot grow and eventually it will die. The roundworm *Caenorhabditis elegans* is an ideal organism to study tubular structure and formation. The excretory canals of the roundworm are composed of a single cell that forms an "H" shaped tubule that runs the length of the organism. Additionally, the roundworm is transparent, which makes observation of the

tubular structure relatively easy. The formation and regulation of this tubular structure has been studied extensively and a number of proteins have been found to be important for tubular formation. Three of these identified proteins are known to play a role in tubular formation and maintenance, but it is not known whether or not these proteins interact with one another. The goal of this project is to determine if these three specific proteins of interest directly interact with one another. Determining this is an essential step in learning more about how tubular structures are formed.

PRESENTATION #83

Lina Wang

A Behavioral Analysis of Fathead Minnow "Pimephales promelas" Breeding Patterns When Exposed to Anastrozole and Bisphenol-A

Format: Oral Presentation

Many water systems around the world have noted an increased feminization of male fish in the presence of endocrine disrupters. Bisphenol-A (BPA), Anastrozole, farm runoff, soil contaminants, and sewage (industrial and residential) can contribute to the aquatic prevalence of endocrine disrupters. BPA is a chemical used in the manufacturing of polycarbonate plastics and epoxy resins. It is an aromatase agonist and known to be estrogenic in nature. Anastrozole is a prescription drug used to treat breast cancer in postmenopausal women. It is an aromatase inhibitor, meaning it blocks the production of estrogen. This project focused on the behavioral changes that occurred when adult fathead minnows were exposed to different concentrations of BPA and Anastrozole. Two sets of 20-liter tanks were set up with a divider and nesting site for each of the following concentrations (0 ppb BPA, 0.2 ppb BPA, 20 ppb BPA, 0 ppb Anastrozole, 0.2 ppb Anastrozole, and 20 ppb Anastrozole) for a total of 12 tanks. A male and female fathead minnow were then added to the tanks and exposed to one of the concentrations for three weeks. During the exposure period, male pigmentation, frequency of nipping, and nest defense intensity based on territorial protection were used as measures of male aggression. Video analysis and daily observations showed fathead minnows exposed to 20 ppb Anastrozole had darker band coloring, became more aggressive, and stayed close to the nest area than those exposed to BPA.

PRESENTATION #84

Logan Medin & Abdulle Abdullah
Soft Communication Skills

Format: Poster

Improving one's soft communication skills should be a major goal for every student at Minnesota State University, Mankato and elsewhere. The problem is that many students do not know what they can do to improve their soft skills. They also might not know what types of communication skills are most useful to them in the field of their respective careers. Students often confuse whether they have to do exercises or have to take classes to gain these soft skills. Also they're struggling to know how these skills can be used to maximize their potential in the workforce. All employers today are looking for recent graduates' with the best soft skills. Employers send their hiring managers to pick the best of college graduates through face to face communication. While doing this these hiring managers will most likely be picking the students with the greatest soft communication skills. There are no guidelines for these soft communication skills but it is easy understand the basic guidelines that would make things easier for them to communicate with the hiring managers. In the light of all of these circumstances it would be very beneficial to both students and employees to learn more about the most common soft communication skill that can contribute to their success in the workplace and in their daily life.

PRESENTATION #85

Maegan Eatwell
Effects of Ultraviolet Radiation on the Brown Midrib Mutation in Sorghum Bicolor and Zea

Format: Poster

Examining plant responses to ultraviolet radiation (UV) under realistic spectral regimes has relied upon supplementing ambient UV using lamps or reducing UV using filters. Responses to sub-ambient UV tend to be more pronounced than those under elevated UV. However, few studies have examined

these responses in greenhouses because most cladding absorbs UV. A new greenhouse polycarbonate material has been introduced that transmits >77% of ambient UV. We examined how UV influenced production of UV-screening compounds, chlorophyll fluorescence, growth, and cell wall constituents in the Brown Midrib (BMR) mutation in *Sorghum bicolor* (sorghum) and *Zea mays* (corn). These BMR varieties are an ideal forage feedstock due to lowered expression of cinnamyl alcohol dehydrogenase and caffeic O-methyltransferase enzymes in lignin synthesis. Plants were grown in a UV-transparent greenhouse under filters that either attenuate (mylar) or transmit (aclar) UV. We measured epidermal screening of UV with a modulated fluorometer and the quantum yield of photosystem II (Φ PSII) and the variable to maximal fluorescence ratio (Fv/Fm) with a chlorophyll fluorometer. Plants under aclar had 22-23% greater epidermal shielding and 35-54% more UV-absorbing compounds than those under mylar. There were few UV effects on Φ PSII, Fv/Fm and growth of either species with the exception of plant height in sorghum. Effects on cell wall constituents were subtle, with cellulose concentrations being 2.5% greater in corn under mylar and lignin concentrations being 1% greater in sorghum under aclar. It appears that BMR sorghum and corn are responsive to UV which could influence their performance in agricultural settings.

PRESENTATION #86

Maggie Olson
Jekyll and Hyde: Classic Literature Adapted for the Stage

Format: Oral Presentation

This presentation will examine two stage adaptations of Robert Louis Stevenson 's "The Strange Case of Dr. Jekyll and Mr. Hyde." The musical "Jekyll and Hyde" by Frank Wildhorn and Leslie Bricusse and the play "Jekyll and Hyde" by Jeffrey Hatcher vary considerably from Stevenson 's novella and from each other. We will look at the theatrical conventions of each genre that influence these adaptations, as well as the ways in which these adaptations provide new perspectives on Stevenson 's classic story.

PRESENTATION #87

Maria Almoite & Jessica Kay
Is Sustained Attention Important for the Testing Effect?

Format: Poster

The Testing Effect is known to enhance learning and long-term retention through repeated-testing (Roediger & Karpicke, 2006). One variable that has yet to be considered is the role of sustained attention on the efficacy of the testing effect. The goal of this study is to combine a measure of sustained attention (i.e., Sustained Attention Response Test-SART; Robertson, Manly, Andrade, Baddeley, & Yiend, 1997) with repeated quizzing of video lecture content to determine if sustained attention is important for the testing effect. Participants will be given the SART assessment and based on their score, as determined to be either high or low sustained attention, will be assigned to one of the following conditions: repeated testing, restudy, or control. We are interested in how participants with high sustained attention compare to those with low sustained attention on the video lecture tests. Specifically, we wonder whether or not high SART scores will influence the testing effect; that is, could participants with high attention do as well on the cumulative test as low sustainers who are in the repeated testing condition. Implications for teaching and learning will be discussed as well as inferring how results might be applied to populations diagnosed with attentional disorders.

PRESENTATION #88

Maria Almoite, Zoe Martin, Monica Gee & Jared Goelz
Improving Students' Self-Efficacy in a Psychology Research Methods Course: An Enactive Mastery Experiences Approach

Format: Poster

The aim of this study was to assess whether students' self-efficacy for research related skills could be improved by taking a course in research methods in psychology that purposefully incorporated mastery approaches identified as effective by the relevant literature. A research



methods course was chosen because its core learning outcomes are highly representative of those held as core to the Psychology major itself. The data for this study were collected from 88 students at two state universities across five sections of the course during three semesters. Students completed a research methods self-efficacy survey once during the beginning of the semester and once during the end of the semester. On this survey, students rated their self-perceived skill on a scale of 1-5 (1 = not at all skilled, 5 = highly skilled) on six components of research methods in psychology. The data showed statistically reliable increases in students' self-efficacy between the beginning and end of the semester in all six areas. The largest gains were observed in areas showing the lowest initial efficacy (i.e., using PsycINFO) and the smallest gains were observed in areas showing the highest initial efficacy (i.e., summarizing articles and interpreting statistics). We interpret these data as evidence that a research methods course in psychology can lead to increased academic self-efficacy for students in areas of core concern to the undergraduate Psychology major. The benefit of mastery approaches along with the utility and application of measuring academic self-efficacy during a research methods course is discussed in this poster.

PRESENTATION #89

Mariah Schumacher

Smart Kid Stereotypes - How being a gifted child shapes life

Format: Oral Presentation

Hearing that someone is in the Gifted and Talented program usually brings up the idea that they are Honor Roll, top of the class, teacher's-pet-like students. But if you were to look deeper, you may see a mess of over-entitled, stressed out, mentally unstable kids who know how to trick the system to make themselves look good. My research is focused on how being in G&T can shape young lives, and what effects this program has on how these students are seen.

PRESENTATION #90

Marina Faber, Kaitlyn Dreblow, Leah Koehler, Dennis Santiago & Sierra Hase
Access to Mental Health Services in Winona County

Format: Poster

An important result from the Community Health Needs Assessment conducted by Winona Health in 2013 was that there are issues with access to mental health services in Winona County. In order to address these problems, Winona Health commissioned a survey to examine how services are being utilized and what gaps exist in the provision of mental health services in the county. Winona County is located in Southeast Minnesota and has a population of approximately 43,000. Winona Health is a hospital located in Winona, Minnesota which conducted the needs assessment survey in the county. Based on the Community Health Needs Assessment conducted by Winona Health, a survey was created to gain insight into the mental health needs in the county. The survey was sent to various support groups at Winona Health, Live Well Winona website, Winona State University Counseling Services, and the local newspaper with links to the survey. There are significant problems with access and services available in Winona County. These problems are partially the result from the continuing stigma that mental health has. Individuals with lower income are less likely to access services because of the way in which health insurance is reimbursed for mental health services. There is an urgent need for this issue to be addressed.

PRESENTATION #91

Marion Danh

Stress and Alcohol Consumption in College Students: Do tangible and belonging support matter?

Format: Poster

Alcohol is often used by college students to cope with stress. Social support has been shown to buffer the negative outcomes of stress, but specific forms of support such as tangible and belonging support have been understudied in

the buffering hypothesis. Therefore, I examined how belonging and tangible social support affect alcohol use depending on one's stress level. Participants (N=212, Mage= 21.51, SD=2.96) were emailed a survey and responded to demographic, stress, social support, and alcohol consumption questions. The moderation effect was tested using multiple regression. There was a significant interaction between tangible support and perceived stress on hours spent drinking and number of drinks consumed. When tangible support was high, perceived stress had no effect on the hours spent drinking or number of drinks consumed, but for those with low tangible support, hours spent consuming of alcohol and number of drinks consumed increased as stress increased. There was a significant interaction between belonging support and perceived stress on hours spent drinking. The follow-up analysis did not; however indicate a significant change for each group depending on stress level. In all analyses, those with higher support had greater alcohol use. Hypotheses were partially supported, the buffering hypothesis holds for specific forms of social support in college students. Individuals with low social support could be targeted for better stress management practices. Those higher in belonging and tangible support may have spent more hours drinking because they have more friends to socialize with. Implications will be discussed.

PRESENTATION #92

Matt Levine

Temperature Dependence of the Dynamic Modulus of Pure Ni

Format: Poster

Dynamic Mechanical Analysis (DMA) was used to investigate the storage modulus and dynamic modulus of 99.99% pure Ni at temperatures from 22 °C to 400 °C. While the measured storage modulus monotonically decreases with increasing temperature, the dynamic modulus has a much more complicated response. In particular, we observe a distinct minima in the dynamic modulus near the ferromagnetic transition temperature of Ni (360 °C). We attribute this feature to a magnetic phase transformation-induced alternating strain due to the applied alternating stress. Additionally, we observe a maxima in the dynamic modulus

near 150 °C, which is in the proximity of where the magnetocrystalline anisotropy energy of Ni decreases sharply. We suggest that both of these anomalies in the dynamic modulus are closely related to magnetomechanical internal friction anomalies in Ni which would support our recent high-temperature nanoindentation results on NiCu (CINT User Proposal U2012B0056: Magnetoplasticity at the Nanoscale). A thorough understanding of this effect would be useful for temperature tunable vibration damping applications in MEMS devices.

PRESENTATION #93

Matthew CoenTuff

Economic Crisis Voting in Greece and Germany: Testing Theories of Sociotropic and Checkbook Voting

Format: Oral Presentation

The world has gone through an economic crisis. In Europe some countries, like Greece, were hit especially hard. In Greece control of the government has changed party hands every election and parties from the right and the left are gaining power. Unlike Greece, Germany has remained more economically and politically stable. Angela Merkel has been Chancellor throughout the entire crisis and her party continues to gain support. I hypothesize that this pattern is the result of sociotropic voting in Greece and more checkbook voting in Germany. This means that Greeks are viewing the country as a whole and not voting based on individual status. Germany seems to be doing the opposite, voting based on personal financial standing. I use Eurobarometer data to analyze the Greek voting behavior and I used German Longitudinal Election Study data to analyze German voting behavior. The results of this analysis reaffirm the hypothesis for both Germany and Greece. Greeks, regardless of economic situations, believe the country is heading in the wrong direction. Germans, who are prospering personally, are more likely to support Angela Merkel, less prosperous Germans oppose the Merkel government. This indicates that countries that are stable economically have checkbook, or personal economic voting.

PRESENTATION #94

Maureen Hukill

Power and Politics: Yuan Shikai's (1859-1916) Role in the 1898 Reform

Format: Oral Presentation

Yuan Shikai was not only a key figure in the dissolution of the Qing Empire, but he also played a crucial role in the abortive 1898 reform. Emperor Guangxu, influenced by reformers like Kang Youwei and Liang Qichao, proposed many educational reforms as well as plans for modernizing both the Qing government and army during 1898. These reforms, while promising to strengthen China and perhaps undo the effects of the unequal treaties, also threatened the established Manchu order, often represented by the Empress Dowager Cixi and her subordinates. In the conflict between conservatives and reformers, Yuan Shikai was important because of the military power he had gained through his role in the modernization of the army. This presentation examines not only the political layout of the 1898 abortive reform, but also reviews Yuan Shikai's personal view of the reform, his position and interest in 1898 that led him to his decision of siding with the conservative Manchu order.

PRESENTATION #95

Megan Kallinen

Practicing Pausing for Optimum Transfer: A Study of Treatment Efficiency

Format: Poster

Speech-Language Pathologists (speech therapists) and Audiologists (hearing professionals) are health care professionals that train clients with communication disorders (e.g., stuttering, stroke, Parkinson's disease) to learn new skills. It is essential that clients also learn to transfer newly learned skills (use them independently out in the real world). There are several key principles that influence how well clients transfer new skills into everyday living situations. Two such strategies are implicit learning strategies (unconscious movement-based) and explicit-learning strategies (verbal cues and conscious self-monitoring). The two types of instructional strategies implemented in

this project were implicit (participants practiced the motor movement repeatedly) and explicit (participants developed verbal cues for self-monitoring). Subjects in the implicit condition (N = 10) practiced 5 sentences 20 times each (total 100 times). They practiced the sentences in pairs and spoke the sentence aloud to another subject. They were given instruction to practice the movement repeatedly to become more consistent and accurate. Subjects in the explicit condition (N = 10) practiced 5 sentences 1 time each (total 5 times). They were given explicit verbal instructions about how to prepare for and cope with time pressure and generated a list of 3 coping "self-cues" (e.g., I will not be rushed, I am going to set my own pace). Subjects in both conditions practiced the sentences in pairs and spoke the sentences aloud to another subject. Results of experimental subjects will be analyzed to determine whether subject who received explicit instruction demonstrated the skill in a real life situation more successfully than subjects who received implicit instruction.

PRESENTATION #96

Michael Doyle

3D Printing of Stainless Steel for Engineering Applications

Format: Poster

3-D metal printing has the potential to solve problems in the medical, prototyping, automotive, aerospace, defense, and other engineering industries. To reach the potential of any manufacturing process, the final product's material characteristics and how the process affects those characteristics must be understood to meet the demands of industrial applications. There is a gap in standard testing information regarding metal based 3-D metal printing processes. The purpose of this research is to fill that gap of valuable information for this manufacturing process, so that its principles can be used to design better products. Fundamental tensile and compression tests were executed using American Society for Testing and Materials standard methods on printed parts whose process variables were adjusted independently. Heater power temperature per metal powder layer, layer thickness, and printing orientation of the part were changed to understand how varying the process affects the strength when elongated



or compressed. These tests and factors were setup using a design of experiments method to reduce the fundamental research's complexity and waste while retaining quality statistical results. Our research shows a strong interaction between the process variables and the resulting mechanical properties. This data can be utilized to design better quality parts.

PRESENTATION #97

Michael Vaske

Use of Cast Nets and Seine Hauls to Estimate Abundance of Age-0 Yellow Perch

Format: Oral Presentation

Knowledge about fish population dynamics is essential for developing management plans and evaluating management success. In many lakes, yellow perch (*Perca flavescens*) are the main forage for many upper level predators and recreational fish species. To better manage recreational fisheries, an accurate estimate of prey abundance is necessary. The objectives of the study were to sample the littoral and limnetic zone to better estimate population of age-0 yellow perch, and obtain an estimate of the proportion of yellow perch being missed by traditional littoral seining methods. Littoral seines were conducted at three randomly selected locations in the south basin of Lake Bemidji. Starting points for cast net transects were chosen at random around the lake and transects were run from the shore to the deepest portion of the lake. A cast net was thrown ten times at every 1.5 meter depth interval throughout each transect. Analysis of the data resulted in a population estimate of 7,393,811. The estimate using seine hauls and cast net transects showed an increase by 62% from the population estimate of 2,812,311 using just littoral seines. This increase and more accurate estimate of age-0 yellow perch recruitment will result in better management decisions.

PRESENTATION #98

Michelle Burke & Gretchen Hinrichs
Implementing Culturally Responsive Teaching in the Elementary Classroom

Format: Poster

This is a qualitative study investigating the procedure of preparing undergraduate teacher candidates for culturally responsive teaching in the elementary classroom. The hypothesis for this study is that intentional experiences and collaborative discussion activities will increase students' knowledge of implementation of culturally responsive teaching in the classroom. "Culturally responsive teachers not only know their students well, they use what they know about their students to give them access to learning" (Lucas and Villegas). This project is significant because classrooms in the United States are rapidly growing in diversity. The twenty-first century teacher needs to be fully equipped in how to respond to culture in the classroom. According to Lucas and Villegas, teachers must move beyond the superficial notion of diversity that is prevalent in classrooms today and gain a fresh vision of teaching and learning in a diverse setting to intentionally guide their curriculum (Lucas and Villegas, 2002). Undergraduate students will participate in a four-week field experience in a Midwestern school district working with kindergarten through second grade students. Teacher candidates will set three responsive teaching goals, complete a survey, and reflect on the goals and field experience. They will also complete a follow-up survey administered by researchers. For this study the population will include thirty-two undergraduate students in their first phase of professional education. Ages range from nineteen to thirty-five. Researchers predict that students will demonstrate a higher understanding of culturally responsive teaching due to intentional instruction and experiences through the college courses and field experience.

PRESENTATION #99

Michelle Moran, Katie Owen, Alesha McPhail & Gayani Gamage

Is there an Association between the Mosquitos and Type 1 Diabetes?

Format: Poster

Type 1 diabetes (T1D) is an autoimmune disease in which particular cells of the immune system, T cells, attack insulin producing cells called beta cells. The lack of insulin causes an elevated blood glucose level (hyperglycemia). Non-obese diabetic, NOD, mice are the preferred model for studying

T1D, because they develop the disease between 12 and 24 weeks of age, by a mechanism similar to humans. Genetic and environmental factors are implied as a cause of T1D. DDE is a persistent organic pollutant, the main metabolite of DDT, which was used as a pesticide to reduce the number of mosquitoes. Since DDT was sprayed on the fields, DDE has been found in water, fields, and agricultural products. Most people ingest or absorb a small amount of DDE throughout their lives. So far, there are no data about DDE's effects on the T1D development. Therefore, we hypothesized that the long-term exposure to DDE would potentiate T1D development in NOD mice. To test this hypothesis, NOD mice were injected intraperitoneally with two doses of DDE, 50 mg/kg (n=28) and 25 mg/kg (n=15), biweekly, from the eight to 24 weeks of age. The control mice received corn oil. Glucose measurements and body weights were recorded weekly. Diabetes onset was confirmed with two consecutive readings of 220 or greater mg/dL. The high-dose DDE treatment of 50 mg/kg caused a significant increase in the incidence of T1D (p<0.05, life table analysis), while the low-dose showed a trend of increased incidence of T1D. These results clearly show that DDE treatment negatively affects diabetes development in NOD mice, suggesting that similar effects can be observed in humans as well. Moreover, our data brings attention to the importance of environmental pollution in the development of T1D.

PRESENTATION #100

Morgan Marcotte

Reading Like a Heroine: The Secret to Self-Education in "Northanger Abbey"

Format: Oral Presentation

Jane Austen's satirical interpretation of the gothic novel is a prevalent aspect in *Northanger Abbey*, and employs many of the typical "gothic" conventions one would expect, but in a subtly distorted approach. We certainly find a typically sentimental heroine in Catherine Morland. Critic evaluations of Austen's fiction often place the hero in an active role in the heroine's education, turning the heroine into a passive sponge under masculine influence. As a consequence, these critics tend to read Catherine as a weak female character incapable of independence. My own focus on Catherine's exploration of *Northanger Abbey* and her relationship with Henry Tilney, however,

suggests a much more feminist understanding of Catherine's learning process. Through detailed close reading and analysis I emphasize that Austen demonstrates Catherine's control over her own education, leading her to be self-taught without merely relying on masculine involvement. While the lessons that Catherine encounters come in many forms – including lectures from Henry as well as reading and exploration – Austen indicates that it is fundamentally up to her to put the pieces together in meaningful ways. Through this approach Austen stresses the importance of forging an active relationship between literature and lived experience, and also that a heroine's capacity for learning does not depend on male intervention.

PRESENTATION #101

Muhammed Saho

Quick Mobile Apps with HTML5

Format: Oral Presentation

The last decade has seen a wealth of consumer electronics that emphasize their extensibility through third party applications otherwise known as apps. Cell Phones, TVs, cars, and even refrigerators now support apps. This provides a special challenge to software developers who want users to engage with their apps on all these different devices. Hyper Text Markup Language 5 (HTML5) aims to unify them by allowing developers to write code once, and deploy to all desired devices. Although the technology is still quite young, HTML5 is the most viable cross platform software development framework of the near future. This presentation will demonstrate some of the tools available today.

PRESENTATION #102

Natalie Young

The Effect of Artificial Sweeteners on the Expression of microRNAs in Rat Kidneys

Format: Poster

Stevia is an artificial sweetener designed to lower calorie use and reduce blood sugar. It is a modified oligosaccharide made up of three glucose molecules and a cyclic alcohol called steviol. Limited research studies have suggested

that it might reduce blood pressure, but no evidence has been provided for the mechanism. There are many molecular players that control blood pressure and hypertension. Some of these proteins are part of the renin angiotensin system (RAS). Activation of both the angiotensin receptor 1 (AT₁) and the prorenin receptor (PRR) result in the production of other proteins that increase blood pressure. MicroRNAs are short non-coding RNAs that bind to the 3' untranslated region of targeted mRNAs and prevent them from making their proteins. MicroRNAs have been shown to decrease the expression of PRR and AT₁ so they have potential to regulate blood pressure and hypertension. MiR-152 has been shown to repress the expression of PRR in retinal cells. High levels of MiR-132 have been associated with lowered AT₁ expression. Therefore, MiR-152 and MiR-132 may affect hypertension and blood pressure. In this study male Wistar-Kyoto (normo-tensive) rats were given a diet of unsweetened osmolite, or osmolite sweetened with glucose, or saccharin, or stevia over a 6-week period. Kidneys were removed and frozen in liquid nitrogen. After microRNA isolation using the MirVANA kit (Ambion), qPCR methods were developed and validated for the quantitation of miR-132 and MiR-152 using U6 small nuclear RNA as the endogenous control. Preliminary results are inconclusive until more samples can be tested.

PRESENTATION #103

Nichole Snyder & Sean Willaert

Biofilm Formation by Escherichia coli csgA and fimA mutants

Format: Poster

Biofilms are a structured community of bacterial cells enclosed in a self-produced polymeric matrix and adherent to an inert or living surface. These structures and the organisms that cause them can pose a very serious problem if they colonize on medical devices. This is because biofilms have the ability to communicate within the colony and with other organisms that might attach to the surface, acting like a community working together. Biofilms allow the organism to be resistant to harsh and unfavorable conditions allowing them to survive longer and spread. Several genes in Escherichia coli have been associated with biofilm formation by that

organism. Many of those genes encode surface appendages such as flagella, fimbriae, and pili. We created mutations in genes encoding curli (csgA) and fimbriae (fimA) with the aim of comparing their ability to form biofilms. The respective genes were disrupted with a kanamycin resistance gene and selected on kanamycin-containing agar. Biofilm formation in nutrient-rich medium and minimal medium is currently in progress, and the ability of the mutant E. coli strains to form biofilms will be compared with that of the parent wild type strain using a crystal violet microplate assay.

PRESENTATION #104

Ommolayo Ogunnowo, Elaine Lossing, KariAnn Uecker & Natasha Theissen

Organizing for Justice: The Critical Constructivist Approach to Reproductive Justice

Format: Oral Presentation

Women's reproductive capacities have always played an important role in society. This has given rise to women being the sole bearers for the continuation of life. As such, the reproductive ability of women has continued to be viewed with critical eyes. Historically, good motherhood has meant never to terminate pregnancy, since it holds the potential of life. Herein lays the issue of what Nancy Ehrenreich calls the Liberal Individualist approach to reproductive rights, which indicates that there should be a non-interventional role of government. This approach indicates that a woman is an individual, rational agent with a constitutional protected right to privacy. On the other hand, Ehrenreich notes that the Critical Constructivist approach takes into consideration that choices are not merely individual, but socially constructed. This project was conducted to familiarize individuals with the concept of reproductive justice. The Pro-Choice Public Education Project (PEP) website was selected for its organizational structure and mission towards contributing to reproductive justice. This website was further analyzed to inquire if it fits into the framework of either Liberal Individualist or Critical Constructivist approaches to reproductive rights/justice. Based on its holistic nature of addressing issues of reproductive justice, we found that the framework of Pro-Choice PEP fits the



PRESENTATION LISTINGS

Critical Constructivist model. As a result, this project contributes to our existing knowledge of reproductive justice and offers explanations of the Critical Constructivist approach.

PRESENTATION #105

Pengyu Qian

When Will the U.S. Stock Market Stabilize?

Format: Oral Presentation

Nowadays, with the high development of the economy, the price of stock is fluctuating more than ever. Many people are wondering what the stabilization point of the U.S. stock market is. In this presentation, we will show a built generalized autoregressive conditional heteroskedasticity (GARCH) function in a financial time series that exhibits time-varying volatility clustering, and the application part of the GARCH model. We used the Dow Jones Industrial Average for our research object and tried to find the relationship between date and daily price trend. This result may have some answers in order to predict when the U.S. stock market will stabilize.

PRESENTATION #106

Rachael Yates Swedberg & Yuko Nakamura

Morphological and Molecular Barcode Characteristics of Parasites from Family Strigeidae Collected from Lake Winnibigoshish

Format: Poster

Identification of parasites can be problematic as many species go through complex life cycles. To make matters for identification worse, plasticity of an organism can allow adaptations to a different species of host, which may incorrectly suggest a different or subspecies of a parasite. In 2012, ducks and waterfowl were recovered from hunters by Holly Bloom, a graduate student of MSU, from the northern Minnesota lake, Lake Winnibigoshish. Inside the intestines of these waterfowl, which included mallard, ring neck, blue wing teal, and scaup, a number of similar parasites were found. The parasites initially were suspected to be of Family Strigeidae, a family of trematodes. The identity of the suspected

individuals has been confirmed to be the species *Cotylurus brevis* and *Cotylurus flabelliformis*. Confirmation of the identity was made from characteristics made visible by microscopy, both stained and SEM. Such characteristics included testis orientation and size, ovary ratio, body ratio, and sizes of ventral and oral suckers. Ranges obtained and observations of sizes and morphology of the worms' organs were comparable to past studies by Nasir (1962) and Dubois (1950). We sequenced a portion of the cytochrome oxidase gene to aid in the identification of these worms. This will be helpful in future studies, because although morphology may change through the parasites life cycle or in relation to the host, its genetic markers should reveal an accurate identification.

PRESENTATION #107

Rachel Munson

Beowulf: Truth or Legend? An Archaeological Perspective

Format: Oral Presentation

The epic poem *Beowulf* is a wonder of the medieval world. Due to its mysterious origins (much like many of its central characters) and unknown authorship the modern medievalist is left to guess whether the poem is mostly truth or legend. We know that many elements of the poem ring true to what we know of the Viking world, but the poem also holds many mystical and supernatural elements as well. However, thanks to the unknown authors use of descriptive rhetoric, modern archaeologists (and budding archaeologists) are able to piece together the poem by using contemporary art, artifacts, and literature. This essays seeks to explore the archaeology within *Beowulf* as a means to better understand whether the poem contains truth or pure legend.

PRESENTATION #108

Rebecca Florke

Guanine Nucleotide Exchange Factor Activity of the DHR-2 Domain in DOCK8 is Regulated by N-terminal Amino Acids

Format: Oral Presentation

DOCK guanine nucleotide exchange factors (GEFs) participate in the intracellular signaling

networks of lymphocytes to regulate Rho GTPase activation, which affects immune cell differentiation and proliferation. All DOCK proteins contain a DOCK homology region-2 (DHR-2) domain that catalyzes the exchange of GDP for GTP to activate Rac1 and/or Cdc42. In this study, the GEF activity of DOCK8 fragments was compared to the DHR-2 domain alone. An increase in GEF activity was observed with the DOCK8 delta940 truncation, indicating amino acid N-terminal to the DHR-2 domain may stimulate the GEF activity of the DHR-2 domain; however, the absence of a similar increase with delta753 could point to an inhibitory or regulatory effect of these additional amino acids.

PRESENTATION #109

Rebecca Newman

Waste to Energy

Format: Oral Presentation

Bio gas generators are a waste to energy solution that reduce our need for fossil fuels. Currently wastewater treatment plants use bio gas to meet facility energy requirements. With the right tools though, this renewable energy source could be introduced into the main municipal grid. This presentation aims to discuss the process in which bio gas is produced. An interview with civil and electrical engineers from HDR captures the development of such technology. Also, the municipal wastewater plant in Sioux Falls, SD is highlighted for their organics to biofuel system. Considerations are made about the cost of creating this technology and implementing it into public grid. Changing the way we process biological waste will aid us in sustaining our increasing energy demands. This information will likely impact the future design of our waste facilities.

PRESENTATION #110

Rebekah Buege

Social Welfare Policy Reform since the mid-1990s: Comparison of the United Kingdom and the Czech Republic

Format: Oral Presentation

This research paper will compare and contrast social policy reforms in the United Kingdom and the Czech Republic since the mid-1990s, with a

special focus on the minimum income provision as an attempt to create a benchmark poverty level. I will address political influences behind these social reforms such as political stalemates and electoral politics with a special focus on how a mature and developed democracy, the United Kingdom, and the relatively new democracy, the Czech Republic, resolve different conflicts over social policy. The conclusion of the paper will discuss lessons that we can draw from each country's accomplishments, such as the successful implementation of tax credits as an aspect of the minimum income scheme in the UK, and failures, such as the controversial, single-component minimum income schemes in the Czech Republic. Many European countries, including the UK and the Czech Republic, have developed reputations for innovative social policies. The research will test the hypothesis that the effectiveness of minimum income policy differs due to institutional path dependency and political influences prevalent in each country. For example, the communist regime legacy in the Czech Republic, along with their relatively new democracy, influences their limited, one-component living minimum, whereas the multi-facet minimum income scheme in the United Kingdom, has been slowly evolving since the Beveridge scheme in 1942, gaining particular momentum after the New Labour Party won the general election in 1997.

PRESENTATION #111

Ryan Carrow

The Effects of Angling Pressure on Northern Pike Size Structure in Public and Private Lakes

Format: Oral Presentation

A number of conditions within a lake system can affect northern pike (*Escox lucius*) size structure. Of these conditions, the amount of angling pressure may have the biggest effect on the size structure of northern pike in Minnesota lake systems. The amount of angling pressure will also change drastically from private lakes to public lakes. In this study, ten lakes (five private and five public) were chosen near Bemidji, Minnesota. Each lake was fished for twenty angling hours using tip-ups or by jigging with live northern hog suckers (*Hypentelium nigricans*) or golden shiners (*Notemigonus crysoleucas*). The lakes were fished

on both weekdays and weekends to account for the higher angling pressure that occurs on weekends. Total length (mm) and weight (kg) were measured for each northern pike caught. The number of fish houses that were on the lake during each angling event was used as an estimate of angling pressure. I hypothesized that private lakes will have less angling pressure and that this would lead to a decrease in size structure of northern pike resulting from high population densities and slow growth.

PRESENTATION #112

Ryan Olson

Materialism and its Effects on College Students Values

Format: Oral Presentation

As social movements, technology, and political periods change through time, so does the young adult and their personal values. However, since the industrialization of the United States, one of the most enduring facets of American society is its system of capitalism and the overemphasis on having, or striving for, a materialistic lifestyle. With that being said, it has been found that one of the major drivers of change in personal values is materialism (Easterlin & Crimmins, 1991), and my study will attempt to see what effects materialism has on peoples' life goals and what life goals my sample has. The purpose of my study is to explore, using a convenience sample of Bemidji State University (BSU) students, how a materialist identity (or lack thereof) affects BSU underclassmen life goals (such as private wealth, self-fulfillment, family life, and public interest), using the 1991 Easterlin and Crimmins study for comparison, and as a way to see how levels of materialism have changed over time.

PRESENTATION #113

Samuel Bach

Winona State University Student Approval of U.S. Drone Strikes

Format: Poster

U.S. drone strikes are a controversial issue. Tom McCauley of the Solomon Asch Center for the Study of Ethnopolitical Conflict, finds citizens of countries other than the United States have a less favorable view of drone strikes than do American citizens. (McCauley, 2013) As future

leaders and current activists, students at Winona State University are surveyed to determine if there is a statistically significant difference in views of drone strikes among certain demographics, in this case international versus domestic students and males versus females. It is hypothesized that domestic and male students have a more favorable view of drone strikes than international and female students. Survey research of 100 Winona State University students asks them about these demographics and their views on drone strikes. The results of this survey determine the attitudes that students of certain demographics have towards drone strikes. These findings are important because they help our current and future leaders make decisions regarding drone policy.

PRESENTATION #114

Samuel Maurice

Cell Phone Use in the Classroom: What Drives Mobile Phone Use and Potential Reduction Strategies

Format: Oral Presentation

I will be presenting the results of original research designed by Dr. Kate Larson of the Psychology Department at Bemidji State University and myself. The research conducted seeks to determine what drives students to use mobile phone technology in academic settings even when such action is prohibited. The research also seeks to use the information found to develop strategies to help faculty reduce the amount of mobile phone use in the classroom as well as to help students develop coping skills to reduce their own amount of mobile phone use. The research uses data collected from students attending Bemidji State University and measures, among other things, students: amount of mobile phone use in the classroom, attitudes towards mobile phone use in the classroom, scores on a measure of problematic mobile phone use, scores on a measure of self-control and scores on a measure of the big five personality traits (Openness, Conscientiousness, Extraversion, Agreeableness and Neuroticism). The presentation will include findings, any statistically significant results, some probable methods for the reduction of mobile phone use in the classroom, as well as potential avenues for further investigation.



PRESENTATION #115

Sanjay Maharjan

Zero Waste: A Dream or a Reality

Format: Oral Presentation

The research aims to explain the concept of Zero Waste design that will strive to reduce material use through practices such as the use of the recycled and organic materials. The presentation will include the following major points: components of waste; where waste is generated; disposal and treatment of waste; and the effect of waste on the environment. The researcher will discuss the vision of Zero Waste to protect the environment. Factors related to waste management (e.g. product life, reparability, and ease of disassembly at end of product life) will be explained. The researcher will also present the cycle of waste production and ways of waste elimination. Requirements for decreasing waste generation will be explained. Techniques for saving money and achieve a more sustainable world through waste management will be illustrated.

PRESENTATION #116

Sara Sobota

The Effect of Bisphenol A (BPA) on the Expression of Aromatase B

Format: Poster

Bisphenol A (BPA) is a common plastic additive that has been shown to have physiological effects that mimic estrogen. Unfortunately, the exact mechanism behind this estrogenic effect is still unclear. The general purpose of this research project was to explore the possibility of post-transcriptional regulation by microRNAs as a possible reason for the estrogenic effect of BPA. The specific objective was to quantify a microRNA that could target and subsequently block expression of the mRNA coding for aromatase, a key enzyme in estrogen synthesis, and to correlate levels of this microRNA with protein expression of aromatase B in a zebra fish system. Computer-based algorithms (BLAST) were used to confirm a very probable match between miR-21 and the 3'-UTR of the aromatase B mRNA. Whole body zebrafish tissues with varying exposure to BPA (0, 0.2,

and 20 ppb) were used for the three separate quantification procedures: microRNA, mRNA and protein. Frozen samples were ground and homogenized and microRNAs and mRNAs were isolated simultaneously with the mirVana™ miRNA Isolation Kit (Life Technologies). The short RNAs were converted to cDNA with sequence-specific stem-loop primers from the TaqMan microRNA RT Kit (Life Technologies). The TaqMan microRNA Assay for miR-21 and the endogenous control (U6 snRNA) were used to complete the qPCR quantification. Preliminary research confirmed efficiency of the microRNA qPCR method and showed decreased miR-21 expression with a corresponding increase of BPA exposure. Additional samples will be evaluated with qPCR and Western blotting for levels of miR-21, aromatase B mRNA and protein.

PRESENTATION #117

Sarah Hammarsten & Chad Schulze

Detecting the presence of the chytrid fungus, Batrachochytrium dendrobatidis (Bd), in amphibians on the Inver Hills Community College campus

Format: Poster

Amphibian populations have been declining worldwide for a number of reasons, including the spread of Batrachochytrium dendrobatidis (Bd), a chytrid fungus that can cause chytridiomycosis. The presence of Bd has been identified in Minnesota, including the headwaters of the Mississippi River and some areas within the Twin Cities. Research was conducted to determine whether Bd is present on the Inver Hills Community College campus. Frogs were sampled from two artificially modified pond ecosystems. Samples were collected by swabbing the epidermis on the feet and ventral drink patch. DNA was extracted from the swabs and underwent a polymerase chain reaction with Bd specific primers to determine the presence of Bd. Three out of ten samples were positive for the presence of Bd, including one Northern Leopard and two Western Chorus frogs. In future research, enhanced sample size would give more accurate results for each species. Further research at multiple sample locations will help determine whether artificially modified ecosystems have a higher rates of this chytrid fungus.

PRESENTATION #118

Sarah Jensen

Pick A Therapy...Any Therapy?

Format: Poster

People all over the world are affected by back pain. Many of these cases cannot be attributed to a specific disease or medical condition such as scoliosis or spinal stenosis. Chronic, non-specific low back pain is extremely hard to treat as it has no specific cause, but studies have shown that up to 80% of people are affected by CNLBP. These individuals often see general physician and are given pain medications or put in an outpatient pain management clinic. However, studies have shown these measures to be ineffective at treating CNLBP and patients become frustrated from the lack of results. Because so many are affected by CNLBP and patients are often dissatisfied with general practitioners, alternative forms of therapy have become more readily available. Four of these include, massage therapy, acupuncture, chiropractic adjustments and physical therapy. I analyzed methods of each therapy, long and short term effects of each therapy, as well as possible risk factors. I found that though there isn't a "fix all" therapy, there are significant gains that can be made with each of these four types. With this knowledge a patient may make an educated decision of which type of therapy would be best for them.

PRESENTATION #119

Shemekia Higgs

Extraction and Quantitation of Sudan Dyes in Spices Using High Performance Liquid Chromatography

Format: Poster

In the United States, many commonly used spices are imported from other countries. Consumers expect high quality, affordable, and safe food on the shelves in stores and markets. They trust that organizations such as United States Food and Drug Administration (FDA) and Environmental Protection Agency (EPA) remain alert to illegal and unsafe practices and handling of food that is being imported and exported. Sudan dyes have been used globally in the fabric and leather industries for many years. However, the use of these dyes in any food is illegal and raises concern for human

safety. Although various sampling methods are currently available on the market, many of them are quite expensive and time consuming. The purpose of this project is to develop a rapid, cost-effective method for detection of Sudan I through IV in spices using High Performance Liquid Chromatography with Diode Array Detection (HPLC/DAD) analysis. The method developed can be used to meet the testing requirements under the import and export laws in United States. Spices contain many natural ingredients that can interfere with the analysis, so sample preparation is necessary. The QuEChERS sampling technique may be used to prepare the sample for analysis by removing interferences. An HPLC method was developed to detect and quantitate the four Sudan dyes being investigated. The QuEChERS method is still being developed, so preliminary results will be shown.

PRESENTATION #120

Stephanie Bove

The Importance of Human Animal Relationships

Format: Oral Presentation

The human animal relationship is one of interdependence. Humans rely on animals for food, comfort, and entertainment, while animals rely on humans for shelter, nutrients, and compassion. What responsibilities do humans have, if any, as stewards of animal populations? This paper argues that our treatment of animals is a reflection of how we treat each other. Authors such as Donna Haraway, Peter Singer, and Desmond Morris have expounded on the topic of human animal entanglement. Haraway's unique perspective informs us that human animal interactions are messy and unavoidable. Singer implores his readers to closely consider the repercussions and implications of our choices for the animals involved. Morris details the concept of anthropomorphism, or symbolism, to show that the ways humans use animals to tell stories is indicative of deeply running connections in our phylum. Additionally, I have done research at Prairies Edge Humane Society to more closely observe the human influence on companion animals. This research works together to demonstrate that human and animal fates are intimately woven together. If humans place themselves in a superior position to animals, then they are intrinsically linked to the wellbeing of those animals.

PRESENTATION #121

Steven McGeary

The Women Homesteaders of Swift County Minnesota

Format: Poster

This study analyzes the lives of women in Swift County, Minnesota from the 1850s through the end of the nineteenth century. It considers why they settled in Swift County, what their relationships were like with their families and friends, what hardships they faced, and how they faced them. This information comes from diaries, letters, and memoirs written by these women, preserved by the Swift County Historical Society and by descendants of these women, as well as interviews of those who knew them.

PRESENTATION #122

Sumeet Gupta

Alcohol Use During Pregnancy in Meeker County

Format: Poster

Fetal Alcohol Spectrum Disorders (FASD) is an umbrella term describing the range of effects that can occur in an individual whose mother drank alcohol during pregnancy. In Minnesota, about 8,500 children are born every year with FASD. This study was conducted in Meeker, Mcleod, and Sibley counties, and the aim of this study was to assess both the level of knowledge of FASD as well as the level of acceptance to the idea of having pregnancy test kits available in local bars and restaurants. Method: We approached women in various community settings such as colleges, grocery stores and restaurants in Meeker, Mcleod, and Sibley counties. All respondents filled out the same survey with demographic questions in the first half, and Likert-scale questions to assess FASD knowledge and willingness to use pregnancy test kit before consuming alcohol in a social setting. Results: More than 90% of subjects showed adequate knowledge of FASD by either agreeing or strongly agreeing, that it is not safe to drink alcohol during pregnancy. However, only 49% of the subjects were willing to spend \$3 on a pregnancy test kit in a bar before consuming alcohol, and that number rose to 70.2% even if the pregnancy test kit was available for free.

PRESENTATION #123

Tashiana Osborne

Bahamian Climate Reconstruction: Fire History

Format: Poster

Reconstruction of lake sediment cores can aid in forming an overview of climate, fire history, flora and fauna, and possibly human impacts over time. In this independent study, a sediment core collected from Blue Hole Five, an inland saltwater lake on San Salvador Island, Bahamas, was examined. This relatively small (~1 ha) keyhole-shaped lake has a shoreline consisting of epikarsted (upper weathered layer of rock) limestone bedrock covered by surface vegetation. Blue Hole Five has no historical record of significant human use. San Salvador Island, however, has a history involving a population of ancient Lucayan people (who originally named the island Guanahani) and has been documented as Christopher Columbus' first landing site in 1492. Charcoal identified in sediment cores serves as a proxy for fire, which is acknowledged as an indication of human activities. The Sieve Method is used in order to examine the microscopic charcoal content of the sediment core collected near the blue hole conduit (connecting it to sea water). Charcoal analysis allows for fire indications to be merged with hydrogeological, anthropological, and biological factors in order to reconstruct the sedimentary climate of Blue Hole Five. Because this lake has no documentation of human impacts other than a recent failed housing development, a minimal amount of charcoal is hypothesized. Fire history reconstruction proves an important addition to Blue Hole Five sedimentary climate records.

PRESENTATION #124

Taylor Burdick

How Differing News Media Frames Have an Impact on Public Opinion Towards Obamacare

Format: Oral Presentation

In October of 2013, the federal government went into a partial shutdown. The cause of this shutdown was the polarized debate over the Patient Protection and Affordable Care Act (PPACA), or Obamacare. The polarization of this



policy did not stop at the elite level; the public has been by-and-large divided on the law as well. This division of the public may have been created by the large and diverse coverage over the policy. There are multiple approaches to determine how the media impacts public opinion. I attempt to find what has been the primary influence on the public attitude toward Obamacare. I hypothesize that news information is framed in such a way as to promote a specific agenda and that frame is different depending on the news media used. These varying frames should play a significant role in determining how the public thinks about Obamacare. I use data from the Kaiser Family Foundation health tracking polls of August and September of 2013. My results thus far show that there is a significant relationship between news source and opinion towards Obamacare. These findings support the theory that framing plays a part in opinion making.

PRESENTATION #125

Taylor Hanson & Paul Creger

Establishment of Primary Neuronal Cultures for the Investigation of Neuronal Survival In Vitro

Format: Poster

Neurons are cells of the brain that pose a challenge to study in vitro as they are one of the few cell types that are post-mitotic and cannot be maintained for a tissue culture as a cell line. Therefore, they must be taken from live organisms and grown in a culture. This study used mouse pups at embryonic day fifteen. A standard procedure for setting up neuron cultures for testing was developed and used for future experiments. Extreme care was taken to prevent cultured neurons from coming in contact with contaminating substances, such as bacteria, by handling neurons in a sterile tissue culture hood. In vitro, neurons require a growth media with all nutrients required for growth and survival. One specific nutrient mixture is B27, which is a standard nutrient mixture of 27 components for neuronal growth in vitro. To study pro-survival protein signaling events within the neurons, serum starve time courses were completed, depriving the neurons from B27 for different lengths of time, including a control group which was not deprived of B27. Proteins were then extracted through cell lysis and analyzed against the control with SDS gel electrophoresis. The comparison of protein expression between serum starved and not starved

neurons will allow us to begin to understand what is involved in the pro-survival signaling pathways of neurons. Culturing neurons in vitro is vital to understanding the cellular and molecular components of neuron function.

PRESENTATION #126

Tigist Hunde

Calcium Hydroxovanadate Synthesis

Format: Poster

Compounds with the apatite-type structure, $M_5(ZO_4)_3X$ (where $M = Ca^{2+}, Sr^{2+}, Ba^{2+}, Pb^{2+}$ etc.; $Z = Si^{4+}, Ge^{4+}, P^{5+}, V^{5+}, As^{5+}$ etc.; $X = OH^-, F^-, O^{2-}$, etc.) are characterized by different properties and may be used as bioactive, laser and luminescent materials, sensors, solid electrolytes and adsorbents. Hydroxovanadates ($Ca_5(VO_4)_3OH$) with apatite structure have enhanced catalytic properties [1] and have been used as carriers for palladium, ruthenium complexes, zinc, nickel, and copper compounds [2, 3] in heterogeneous hybrid catalysis. The purpose of this work was to study for more efficient method of $Ca_5(VO_4)_3OH$ synthesis. Solid-phase synthesis and solid-phase synthesis from solutions using $CaCO_3$ and NH_4VO_3 as initial reagents were considered and studied by X-ray powder diffraction. Ceramic synthesis of calcium hydroxovanadates ($Ca_5(VO_4)_3OH$) can be performed at temperature of at least $900^\circ C$ after annealing for 24 hours. Due to the better homogenization of the constituents of the resulting compound through solubilization, solid-phase synthesis of single-phase product from nitric-tartaric solution can be carried out at much lower temperature of $650^\circ C$, after annealing for only 7 hours and this method appears to be more advantageous. 1. T. Hara, S. Kanai, K. Mori, T. Mizugaki, K. Ebitani, K. Jitsukawa and K. Kaneda, J. Org. Chem., 2006, 71, 7455-7462. 2. K. Yamaguchi, K. Mori, T. Mizugaki, K. Ebitani and K. Kaneda, J. Am. Chem. Soc., 2000, 122, 7144-7145. 3. K. Mori, K. Yamaguchi, T. Hara, T. Mizugaki, K. Ebitani and K. Kaneda, J. Am. Chem. Soc. 2002, 124, 11572-11573.

PRESENTATION #127

Tino Musemburi

Practicing Pause for Optimum Retention: A Study of Treatment Efficiency

Format: Poster

Speech-Language Pathologists (speech therapists) and Audiologists (hearing professionals) are health care professionals that train clients with communication disorders (e.g., stuttering, stroke, Parkinson's disease) to learn new skills. Equally important to clients is the retention of (ability to remember) those skills in the long term. There are several key principles that influence how well clients remember new skills, such as how and when to practice and how and when to provide feedback and reinforcement. The two types of feedback examined in this project were infrequent feedback (participants self-monitored their accuracy every ten trials) and frequent feedback (participants self-monitored their accuracy after every trial). The two types of practice examined in this project were constant practice (the same ten phrases were repeated) or variable practice (ten different phrases were repeated). Results of more than 30 experimental subjects will be analyzed to determine whether subjects who received infrequent feedback, and engaged in variable practice remembered the skill one week later more accurately than other subjects.

PRESENTATION #128

Tony Connors

Expanding Art's Audience

Format: Oral Presentation

This paper investigates the need for contemporary art museums to expand their audience to fit their role as educational institutions. It is based on research that looks at ways museums have typically been operated in the past and then focuses on newer modes of operation, using the Brooklyn Museum as an example of a museum that educates and reaches a greater audience. Lastly, the paper looks at how particular artists have broken the mold of presenting art in order to interact with and relate to audiences in new ways. This research explains ways that art can be made accessible to a wider audience through the efforts of museum and artists to educate and involve a more diverse population.

PRESENTATION #129

Travis Hensersky

The Effects of Various Video Game Genres on Cognition and Brainwaves

Format: Poster

As the world changes the way people entertain themselves changes. It is important to understand how these changes in entertainment impact individuals. The prevalence of video games as a medium cannot be overstated; in the United States alone, 51% of households have some sort of dedicated gaming console. As a result of the increasing exposure of video games to the general public, psychologists have been trying to pin down exactly what impact video games have on humans for decades. Research has largely focused on the effects of violence, but has been inconclusive. We sought out to see whether or not any differences exist between the brain waves of those participating in high violence games (e.g. First Person Shooters) and low violence games (e.g. Turn Based Strategy) and also whether or not exposure to these varied genres of games return different results on various affect surveys.

PRESENTATION #130

Travis Hensersky

Can Perceptually Demanding Encoding Tasks Help Dissociate Recollection-based and Familiarity-based Recognition Memory?

Format: Poster

Many memory models assert that strength of familiarity-based recognition memory is based on the accumulation of evidence. A recurring question in the debate of how to model familiarity-based memory is what type of information can serve as “evidence”? This question is problematic, because although many dominant models of recognition memory assume the strength of evidence is important, they fail to define what characterizes evidence. We set out to evaluate what type of pictorial attributes might serve as evidence by displaying images that were visually transformed (mirror-reversed) while remaining identical in meaning.

PRESENTATION #131

Trudy Koepsell

Aspartame: What Dental Hygienists Should Know Before Recommending Sugar-Free Products

Format: Oral Presentation

The Food and Drug Administration (FDA) approval history of the low-calorie artificial sweetener, aspartame, was examined along with research results showing links to toxicity, disease, and obesity. An FDA timeline suggests political and financial scandals involved in the initial research and approval of the sweetener, while the chemistry and biology of aspartame metabolism in the body is presented to educate dental professionals of the toxic effect it has on their patients when recommending sugar-free options to prevent tooth decay. Recent studies on rats show that methanol, in aspartame, is a brain neurotoxin, and that chronic ingestion results in cancers. Studies also prove that aspartame sweetness increases insulin production and cravings, which result in weight gain. These studies, along with my personal addiction and resulting Aspartame Disease, are presented along with FDA research that supports aspartame approval, to help the dental professional make an educated choice when advising and recommending sugar-free products to their patients.

PRESENTATION #132

Veronica Colletti

Winona State University Students and County Elections

Format: Poster

Since 2003, Richard G. Niemi and Paul S. Herrnson and multiple other scholars have studied voter roll-off, or ballot incompleteness. There are many possible reasons for voters to not vote for every race on the ballot, one of these reasons being age of the voter. This research asks if Winona State University students vote as often for county elections as they do for federal elections. Federal races are widely known and cared about but county elections are non-partisan and do not get as much media attention. These non-partisan races are going to

have lower turnout than federal races. Through survey research, 100 WSU students will be asked, regarding their voting behavior, how likely they are to vote for multiple races in the upcoming 2014 Midterm election and 2016 Presidential election. With this information, I can begin to assess the number of students who actually plan on completing a ballot when at the ballot booth with a correlation of likelihood of voting and student status. I hypothesize that WSU students would be less likely to vote in non-partisan elections and more likely to vote in federal elections. My findings could contribute to future elections for non-partisan races.

PRESENTATION #133

You Wang

An Economic Analysis of Housing Market Instability and Affordability in China

Format: Oral Presentation

Housing market instability in China has prompted fear of a price bubble and a related housing market affordability crisis since 2000. Applying an intertemporal optimization model proposed by Aizenman and Marion (1991), this research quantifies instability in the Chinese housing market. Although the Chinese government established numerous real estate policies to ensure the stability of the housing market, the regression analyses indicate that housing policies had no significant impact on the stabilization of the Chinese housing market. Alternatively, macroeconomic factors such as the growth rates of gross domestic product and the money supply, respectively, are identified as significant explanatory variables to the instability of housing prices. The ratio of median house price relative to median annual household income, known as the Median Multiple, measures changes in housing affordability. Using data from the National Bureau of Statistics of China, this research computes the Median Multiple for major cities in China and provides an alternative means of investigating the abnormal housing price situation in China.

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