8th Annual

Undergraduate Research Conference 13

at Southwest Minnesota State University

Wednesday, December 4

Starting at 8:30 a.m.
in the SMSU Conference Center

ABSTRACT BOOKLET

SOUTHWEST
MINNESOTA STATE UNIVERSITY

Conference Locations:

❶ Conference Center, Upper/Lower
❷ Student Center, Upper Level
❸ Library Plaza, BA 272
❹ CH 201

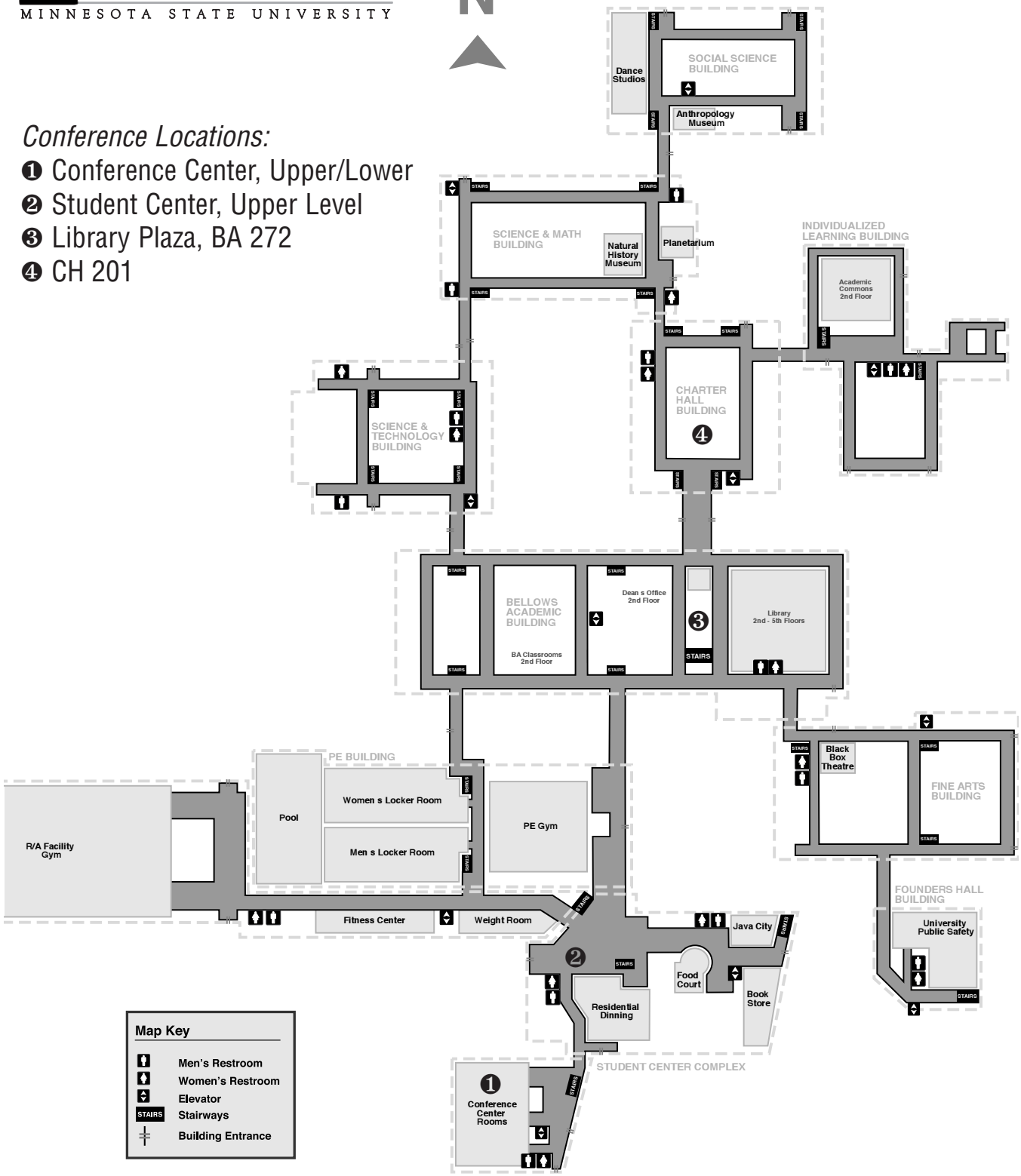

Table of Contents

Purpose

The purpose of the Annual SMSU Undergraduate Research Conference is to highlight the original work done by SMSU undergraduate students at a one-day conference to be held annually at the SMSU campus. The public, including the university and Marshall community, friends, parents, alumni, prospective students and employers are all encouraged to attend and enjoy the excitement of intellectual accomplishments of our students.

How the Conference Started

The conference was initiated fall of 2006 by Dr. Emily Deaver, Professor of Environmental Science. After she and Dr. Thomas Dilley conducted an Environmental Science program review in 2005-2006, it was clear that our science students needed more experience conducting research and communicating the results of that research to the broader community. The 1st Annual SMSU Undergraduate Research Conference was designed as a mechanism for SMSU science students to engage in a professional exchange of scientific ideas, as well as a means to showcase and celebrate their hard work and accomplishments. The first year program included 21 oral and 27 poster presentations from science students in Environmental Science, Biology, Physics and Chemistry. Because of the positive feedback from the academic community the conference was expanded to include all disciplines across campus. Fall 2007 the 2nd Annual SMSU Undergraduate Research Conference doubled the number of presenters with 13 different programs across campus participating. This year, in 2013 there are 17 different programs participating and 32 different faculty advisors. The hope is that the conference will continue to grow each year as we celebrate the intellectual achievements of SMSU undergraduates.

Conference Highlights

2006	21 orals, 27 posters	67 presenters
2007	27 orals, 56 posters, 15 original art	143 presenters
2008	40 orals, 73 posters, 20 original art	178 presenters
2009	25 orals, 77 posters, 18 original art	158 presenters
2010	29 orals, 68 posters, 16 original art	161 presenters
2011	45 orals, 74 posters, 20 original art	185 presenters
2012	49 orals, 102 posters, 6 original art	206 presenters
2013	48 orals, 98 posters, 9 original art	223 presenters

Welcome and Keynote

SMSU Conference Center Upper Ballroom

8:30 .....Dr. Connie J. Gores, SMSU President, Opening Remarks

8:45 .....Keynote Address: Mr. Joseph Hauger, Senior Pollution Control Specialist, Minnesota Pollution Control Agency

"Research vs. Research: Making Resource Decisions in the Face of Conflicting Studies"

Platform Session A

SMSU Conference Center Upper Ballroom

9:45 .....Jared Wagner, ENVS, Comparison of Macroinvertebrate and Planktonic Populations in a Newly Constructed Stormwater Holding Pond and an Existing Stormwater Holding Pond

10:00 ....Hannah Beeler, ENVS, Evaluation of Land Snail Populations in Deciduous and Coniferous Forests in the SMSU Wildlife Area

10:15 ....Sharon Carlson, ENVS, Investigations of Radon Levels in Southwestern Minnesota

10:30 ....***BREAK***

10:45 ....Gregory Pavek, ENVS, Seasonal Habitat Preference of Fish in Lake Cochrane, SD

11:00.....Jaron Christenson, ENVS, River Sand Composition Compared to its Bedrock Origin: South Platte River, Big Thompson River, Cache la Poudre River in Colorado and Nebraska

11:15.....Neal Maurer, ENVS, Classification and Abundance of Grasshoppers in the SMSU Wildlife Area

11:30.....Gillian Rolfe, Mary Groth & Hannah Beeler, Biology, Seed Color Preference by Birds in Southwest Minnesota

11:45.....Bailey R. Andersen, Sirocco Peterson-Wahl & Theresa Ehnert, Biology, Frog Deformity Occurrence in Minnesota

12:00-1:15...Samantha Lemmerman, Justin Craigmile, Anthony Caron & Katie Schwarz, Creative Writing, An Evening With Us: Senior Portfolio Readings

1:45 .....Jared Wagner, Nischal Shrestha & Michael Mattick, Biology, The Effects of Urbanization on Benthic Macroinvertebrate Populations of the Redwood River in Marshall, MN

2:00 .....Courtney Lingen, Caitlyn Johnson & Manisha Prajapati, Biology, Density and Diversity of Grasshoppers in Five Prairie Islands on SMSU Campus

2:15 .....Mikeal Cooper, Nathanael Gratz & Ben Tonsager, Biology, Vegetation Composition of Prairies at Camden State Park, Minnesota

2:30 .....John Hammonds, Walker Schaar & Noble Ekuban, Biology, Antimicrobial Activity of Three Species of Prairie Plants

2:45 .....ReNae Clark, Chemistry, Evaluation of the Sikora Buffer Reagent as an Alternative to SMP in Estimating Soil Lime Requirement

3:00 .....John Hammonds, ENVS, Comparison of Endophytic PGPR Populations as a Factor for Invasiveness of Prairie Dock (*Silphium sp.*)

3:15 .....***BREAK***

3:30 .....Shoua Lee, Amber Casperson & Zia Vang, ENG 360, Promoting Healthier Food on Campus

3:40 .....Jessie Fitzer, Caci Lingen, Rebecca Radtke & Rebecca Suter ENG 360, Recommendations for Sustainable Stormwater Management at SMSU

3:50 .....Emily Kubesh, Alex Kircher & Hope Bonlander, ENG 360, Improving Campus Health by Offering More Group Physical Activities

4:00 .....Ryan Punke, Greg Pavek & Ashley Slyter, ENG 360, Sustainability Awareness: Campaigning for a Sustainable Campus Through Monthly Goals

4:10 .....Samantha Neyens, Dylan Shoemaker, Daniel Hansen & John Bister, ENG 360, SMSU & YMCA Partnership for University Fitness

4:20 .....Question & Answer session, ENG 360

4:30 .....Adam Hawkinson, Olivia Garrett & Brittany Sallee, ENG 360, Requirements for a Healthier "U"

4:40 .....Cole Hegstad, Colter Fortenberry, Jade Tonding & Caleb Heim ENG 360, Use of Sustainable Energy to Lower SMSU's Energy Costs

4:50 .....Kailey Hanson, Alison Nagel & Terrance Maier, ENG 360, Healthy Solutions for SMSU
5:00 .....Tyler Anderson, Natascha Watercott & Garrett Conn, ENG 360, Providing Healthier Food at SMSU
5:10 .....Emily Klima, Holly Erickson & Neal Maurer, ENG 360, Increasing Physical Fitness on Campus by Establishing Fitness Clubs on Campus
5:20 .....Question & Answer session, ENG 360

Platform Session B

SMSU Charter Hall 201

9:45 .....Jayme Wiertzema, Kiley Beste & Rachel Frerich, Art History, Illuminated Manuscripts Poster Design
10:00 ....Maria Gilland, Caitlyn Schultz & Stephanie Wisdom, Art History, MAFAC Medieval Illuminated Manuscript Poster Design
10:15 ....Lauren Teal, Sociology, Rape Realities: Portrayal of Rape in News Media
10:30 ....***BREAK***
10:45 ....Holly Mikkelson, Sociology, How Much is Too Much Before Driving?
11:00.....Sylvia Patton, Political Science, Minnesota Sex Trafficking
11:15.....Sarah Lee, History, Situation Comedies from "Father Knows Best" to "One Day at a Time": Social Consciousness Comes to Television
11:30.....Laura Bautch, Sociology, Perceptions of the Physically Disabled in Movies
11:45.....Stephanie Ahlschlager & Karen Kremer, Exercise Science, Difference of FMS Testing between Female Recreational Dancers, Trained Athletes, and Non-Athletes
12:00-1:00...***LUNCH BREAK***
1:00 .....Gabrielle Cohrs, Katie Grebinoski & Anna Berman, Art History, Illuminations through the Dark Ages
1:15 .....Amy Karlstad, Sociology, Reasoning/Meaning Behind Tattoos
1:30 .....Will R. Kurka, Political Science, Economic and Environmental Impact of Aquatic Invasive Species in Minnesota
1:45 .....Richard Johnson, History Muhammad Ali: From the "Louisville Lip" to the "Peoples Champion"
2:00 .....Rob Wedl, History, Churchill: His Views on Communism from 1917-46
2:15 .....Victor Montelongo, History, 1986 Immigration Reform & Control Act
2:30 .....Samantha L. Lemmerman, Creative Writing, Moved to poster #98
2:45 .....Jacob Rigge, History, Truman and "The Old Soldier": Public Reaction to the Firing of Douglas MacArthur
3:00 .....Rodney Hoffbeck, Political Science, Port of Duluth Expansion
3:15 .....***BREAK***
3:30 .....Michael W. Vogt, Political Science, Upper Minnesota River Valley Conservation and Recreation Area
3:45 .....Melissa Talley, Political Science, Minnesota Sex Offender Program
4:00 .....Pal G. Deng, Political Science, Vehicle Training Expansion Center
4:15 .....Sara Marie Mills, Theatre, The Application Process: Cake vs. Crème Makeup

Poster Presentations Session A

SMSU Conference Center Lower Ballroom, Posters displayed 8:30 am-5:00 pm
Authors available at time listed after title
Academic areas: Biology, Chemistry, Computer Science, Exercise Science, Liberal Education Program

1 .....Roma kc, Biology, Late Onset of Group B Streptococcus Infection Caused by the Ingestion of Infected Breast Milk, 2:30-3:00; 4:15-4:45
2 .....Angela Wieland, Chemistry, *Ab Initio* Calculations of Carbon-Chlorine Bond Energy in Simazine Using Spartan, 3:00-4:00
3 .....Samantha Becht & Katlin Fuhs, Exercise Science, The Effects of Static Arm Stretching on Upper Body Ergometer Performance in Wheelchair Athletes, Samantha 10:00-11:00, Katlin 11:00-12:00
4 .....Sirocco Peterson-Wahl, Biology, Australian Funnel-web Spider Venom δ-Atracotoxin Effects on Sodium Channels, 1:00-1:30; 2:45-3:15

Conference Schedule Wednesday December 4, 2013

5 .....Matt Zager, Vinard Birch & Jordan Buddenhagen, Exercise Science, Effects of Flexibility on Vertical Jump, Matt 1:00-2:00, Vinard 2:00-3:00, Jordan 3:00-4:00

6 .....Brandon Jenniges & Sanjeeb Bajracharya, Computer Science, Mytify, 10:00-11:00

7 .....Juni Lama & Molley Glidden, Biology, Allelopathic Effects of Garlic Bulb Extract in Different Concentrations on the Mustard Plant Length and Its Shoot Biomass, 1:15-2:00

8 .....Reid Alsworth, Computer Science, Real-Time Agent Simulation, 2:00-3:00

9 .....Ronald Enno, Computer Science, Casino Game in Python, 10:00-11:00

10 .....Adam Bock, Samuel Metras & Michael Pick, Exercise Science The Effect of Sleep Deprivation on Determinants of Sports Skills, Adam 10:00-11:00, Samuel 2:00-3:00, Michael 11:00-12:00

11.....Kristina Honken, LEP, A Rock Solid Education: All Year Long, 10:30-11:30

12 .....Katlyn Sandbulte & Monica Fales, Biology Allelopathic Effects of Onions on the Height and Dry Weight of Cowpeas, 2:45-3:30

13 .....Rachel Patnoe, Biology, Possible Mechanisms of Intravenous Immunoglobulin in the Amelioration of Immune Thrombocytopenic Purpura, 1:45-2:45

14 .....Christopher LaScotte & Joel Phillips, Computer Science, Designing an Unmanned Forklift, 1:30-2:30

15 .....Lynn Lafky & Dyreen Nyagesuka, Computer Science, Hotel Management System, 1:00-2:00

16 .....Alyssa Carmany, Heidi Krueger & Kelsey Verdoes, Exercise Science, Balance in Recreational Dancers Compared to Two Control Groups, Alyssa 11:30-12:30, Heidi 1:30-2:30, Kelsey 2:30-3:30

17 .....Nischal Shrestha, Biology, Ghrelin Secretion Under Stress and Its Role in Obesity, 11:15-11:45; 3:30-4:00

18 .....Anup Shakya & Unisha Dhakhwa, Computer Science, Restaurant Point of Sales System, 2:00-3:00

19 .....Mark Vue & Pheng Yang, Computer Science, Course Scheduler, 1:00-2:00

20 .....Walker Schaar, Biology, Antiangiogenic and Apoptotic Effects of Cannabidiol, 10:45-11:45

21 .....Dylan Doyle, Ashley Timm, Evyn Hubbard & Joshua Watterson, Exercise Science, Post-Exercise Ankle Brachial Index in Spinal Cord Injured/Affected Individuals, Dylan 3:00-4:00, Ashley 10:00-11:00

22 .....Michael Paulson, Mathematics, A Topological Look Into Football, 10:00-11:00

23 .....Cadie Meyer, LEP, From 5 Days to 4: Should Schools Make the Switch?, 1:00-2:00

24 .....Elizabeth Senkyr & Luke Stadther, Biology, The Quality of Light and its Effects on Kidney Bean Growth, 11:15-12:00

25 .....Daniel John Hansen, Exercise Science, Single Leg Power and Change of Direction Speed, 11:00-12:00

26 .....Dale Schluter, Computer Science, Web-based 3D CAD Program, 1:00-2:00

27 .....Autumn C. Hayes, Exercise Science, Effects of a Season on the Physical Fitness of Division II Women Soccer Players at Southwest Minnesota State University, 1:30-2:30

28 .....Rebecca Sommer & Samantha Ritter, Biology, The Allelopathic Effect of Orange, Lemon and Banana Extract on Dry Biomass, Height and Overall Vigor of Rodeo Oats, 1:00-1:45

29 .....Alison Nagel, Exercise Science, Literature Review for a Case Study of a Knee Injury, 3:00-4:00

30 .....Jamison Starr, Computer Science, Ticket to Ride, 2:00-3:00

31 .....Samantha Neyens, Exercise Science, Y-Balance Test, 50 years+, 1:30-2:30

32 .....Emilee Gutzmer & Claire Sames, Biology, Allelopathic Effects of Common Foxtail Extract on Early Growth of Field Corn, 9:45-10:30

33 .....Charlie Kern, Abe Kos & Laura Schultz, Exercise Science, The Effects of Ambient Air Temperature on Measurements of Explosive Power, Charlie 1:30-2:30, Abe 3:00-4:00, Laura 2:30-3:30

34 .....Emily Kubesh & Ashley Schumacher, Exercise Science, Functional Movement Screening of SMSU Division II Collegiate Athletes, Emily 10:00-11:00, Ashley 11:00-12:00

35 .....Michael Paulson & Travis VanOverbeke, Computer Science, Dominion: From the Table Top to the Computer Screen, 11:00-12:00

36 .....John Craig, Chemistry, Analysis of Hot Sauce Intensity by HPLC, 2:00-3:00

37 .....Kelsey Stern & Jenna MacHolda, Exercise Science, Post-Exercise Ankle-Brachial Index Measurements in Upper Body vs Lower Body Ergometry, Kelsey 11:30-12:30, Jenna 1:00-2:00

38 .....Michael Mattick, Dana Kells, Nathan Meyers & Lauren Douglas, Biology, Allelopathic Effects of Coffee Bean Extract on Sunflower Plants, Michael & Nathan 10:00-10:45, Dana & Lauren 2:15-3:00

39 .....Rachel Patnoe, Chemistry, Optimizing a New Experiment for Organic Chemistry Lab, 11:15-12:00

40 .....Herman Houedan & Shahanshila Shakya, Computer Science, GeoTest Application, Herman 3:00-4:00, Shahanshila 1:00-2:00

41 .....Katelyn Sullivan, Catherine Otto & Tyler Tonderum, Exercise Science, The Effects of Caffeine on Reaction Time and Concentration, Katelyn 1:30-2:30, Catherine 11:00-12:00, Tyler 2:30-3:30

42 .....Terrance Maier, Travis Larson & Whitney Miller, Biology, The Allelopathic Effects of Sunflower Extract on Peas, Terrance & Whitney 2:45-3:30, Travis 11:15-12:00

43 .....Michael Wenk, Cole Oswald & Eric Giddings, Exercise Science, Effects of Music on Muscular Endurance, Michael 10:00-11:00, Cole 11:00-12:00, Eric 1:30-2:30

44 .....Avish Kansakar, Computer Science, Unity Shoot, 11:00-12:00

45 .....Rachel Westby, Christa Wolf & Margaret Lindow, Exercise Science, The Effects of Foot Placement on Force Production, Rachel 11:00-12:00, Christa 1:00-2:00, Margaret 2:00-3:00

46 .....Ross Kuchta, Chemistry, Computational Investigation on the Mechanism of Thermochromism in N-Salicylideneaniline, 1:30-2:30

Poster Presentations Session B

SMSU Bellows Academic Library Plaza (BA 272) Posters displayed 8:30 am-5:00 pm

Authors available at time listed after title

Academic areas: Ag Business, Political Science, Psychology, Sociology and Theatre

47 .....Payton Shively, Theatre, Flashback to the '50s & '60s, 11:30-12:30

48 .....Ryan Risa, Theatre, "Look of the Lion", 1:00-2:00

49 .....Anna Gwendolyn Eben, Theatre, Prosthetics: True to Life, 11:00-12:00

50 .....Jessica Linder, Theatre, Mermaids Are Real: Stage Makeup Application, 10:00-11:00

51 .....Callie Frank, Theatre, Once On This Island: Make-Up Application for Creating the Gods, 10:00-11:00

52 .....Madeline Hentges, Theatre, The Healing Process: Application of Wounds, 10:00-11:00

53 .....Lynn Lafky, Theatre, Throughout the Ages: Aging Stage Makeup, 10:00-11:00

54 .....Alexander Pikala, Theatre, Video Character Make-up for Cosplay, 11:00-12:00

55 .....Danielle Grunewald, Theatre, Kabuki Makeup, 1:00-2:00

56 .....Kyle Havlicek, Theatre, The Make-up Styling of Rick Baker, 1:00-2:00

57 .....Emily Woodrow, Theatre, Disney on Stage: A Makeup Process, 12:30-1:30

58 .....Tony Falk, Theatre, Tattoos In Theater, 11:00-12:00

59 .....Turi Jystad, Theatre, Makeup Allergens, 1:00-2:00

60 .....Jessa Roberts, Theatre, Defining Faces for all Spaces, 11:00-12:00

61 .....Chuche Lee, Theatre, Ursula the Sea Witch, 3:00-4:00

62 .....Rebecca Scott, Theatre, Contouring the Face Using an Airbrush, 3:00-4:00

63 .....Briana Helmer, Theatre, From Drab To Fab: A Drag Queen Process, 11:00-12:00

64 .....Zhenya Ward, Political Science, Municipal Budgetmaking in Southwest Minnesota, 3:00-4:00

65 .....Brandon Soller, Political Science, The Overpass Initiative: Highway 169 in Jordan, Minnesota, 11:00-12:00

66 .....Jon Kindschi, Political Science, Impact of the Mayo Clinic's Destination Medical Center on Southeast Minnesota, 1:30-2:30

67 .....Steven Halloran, Political Science, The Minnesota Farm Machinery Repair Sales Tax: Costs and Benefits, 1:30-2:30

68 .....Changkuoth Gatchay, Political Science, Impact of the Minnesota Power Plan on Greater Minnesota, 11:30-12:30

69 .....Joe Stremcha, Political Science, Speed Limit Increases on U.S. Highways 59 and 75, 3:00-4:00

70 .....Eddie Anderson & Kyle Johnson, Sociology, Testing Melvin Kohn's Theory Using Data from the General Social Survey, 3:00-4:00

71 .....Abbie Meyer & Vonnie Hammerschmidt, Sociology, Using General Social Survey Data to Test Hirschi's Control Theory, 10:00-11:00

72 .....Megan Gullickson, Sociology, The Explanatory Power of Durkheim's Theory of Suicide: A Review of Contemporary Research, 2:00-3:00

73 .....Erin Reps, Sociology, Exploring African-American Spirituals Through the Lenses of the Three Major Sociological Perspectives, 4:00-5:00

74 .....Desirae Guscette & Emily Remmers, Ag Business, Economic Development in the Dominican Republic, 2:00-3:00

75 .....Mark Jankowski, Psychology, Where's Waldo: Comparing Different Target Stimuli Using Conjunctive Search, 2:30-3:30 pm

76 .....Björn Walter, Psychology, The Effect of Divorces on Child Development, 10:30-11:30

Poster Presentations Session C

SMSU Student Center Upper Level (SC 216)

Posters displayed 8:30 am-5:00 pm, Authors available at time listed after title

Academic areas: Computer Science, History, Psychology & Creative Writing

77 .....Carol Baune, Psychology, The Effect of Listening Time on Perception of Music, 3:30-4:30

78 .....Shannon Marholtz & Kristina Trembley, Psychology, Color Deficiencies and the Influence of Age, Gender and Smoking, 3:30-4:30

79 .....Cadie Meyer, Psychology, The Role of Eyes and Eyebrows in Facial Recognition, 10:30-11:30

80 .....Jina Stockland, Kimberley Einck & Kristi Eisenbraun, Psychology, Taste Perception for Generic vs. Name-Brand Soda, 3:30-4:30

81 .....Daniel Nordlund & Daniel Sargent, Psychology How Does the American Diet Affect the Way Our Bodies Work?, 10:30-11:30

82 .....Angela Euerle, Tracy Kellen & Björn Walter, Psychology, The Effects of Auditory Stimuli on Taste, 10:30-11:30

83 .....Joshua Hughes & Gena Stevens, Psychology, Health Halo Effects from Diet and Zero Calorie Sodas, 11:30-12:30

84 .....Dillan Hutchins & Dan Francis Jr., Psychology, Effects of Binge Drinking on GPA, 2:30-3:30

85 .....Ashley Edwards & Kathleen Walker, Psychology, Effects of Birth Order on Academic Achievement in Children, 10:30-11:30

86 .....Danica Caudillo & Kayla Williams, Psychology, Taste Expectancy and Taste Perception: Does What We See Effect the Taste of Food? 11:00-12:00

87 .....Ann Kopitzke, Psychology, Perception of Aggression in Color Among SMSU Students, 10:00-11:00

88 .....Rebecca Holmblad & Catherine Barstow, Psychology, The Effects of Music on Pain Perception, Rebecca 10:30-11:30, Catherine 2:00-3:00

89 .....Mariah J. Garver, History, Between the Lines: the Womanly Construct of Ladies' Home Journal, 1950-1959, 10:30-11:30

90 .....Steven McGeary, History, The Women Homesteaders of Swift County Minnesota, 1:30-2:30

91 .....Michelle DeVries, History, The Rwandan Genocide: Why the World Watched, 1:30-2:30

92 .....Ryn Bursack, History, Thomas More and Erasmus: Defenders of the Faith, 11:00-12:00

93 .....Kyle Pavek, History, The Prague Spring and Soviet Intervention of 1968, 3:00-4:00

94 .....Anna Biastock, History The Minnesota Civilian Conservation Corps and the Creation of Camden State Park, 1934, 1:30-2:30

95 .....Daryl Thomas, Psychology, Body Growth and Development, 2:30-3:30

96 .....Leonard Panion, Psychology, Does stress cause aging? And what can we do about that? 2:30-3:30

97 .....Sabin Sapkota & Kelly Schuerman, Computer Science, Wireless Infrastructure Evaluation for SMSU, 2:00-3:00

98 .....Samantha L. Lemmerman, Creative Writing, Bad Romance and Good Conversations: An Exploration of the Primary Relationships in *Fifty Shades of Grey* and *Twilight*, 2:30-3:30

Original Works Session A

Student Center Upper Level, Artists next to work 2:00-3:30 pm
Displayed Monday, Dec. 2 through Monday, Dec. 9, 2013

1 .....Gabrielle Cohrs, Compartmentalization, Sculpture
2 .....Rachel Frerich, Country Time, Sculpture
3 .....NaLee Lor, The Mechanic, Sculpture
4 .....Annie Erickson, A Blank Slate, Sculpture
5 .....Trent Smith, Music is Life, Sculpture
6 .....Em Woodrow, War Untitled, Sculpture
7.....Jayme Wiertzema, Art Advocacy, Sculpture
8.....Tara Borman, A Time and Place, Sculpture
9.....Laura Ahrendt, Media Assault, Sculpture

Keynote Address

"Research vs. Research: Making Resource Decisions in the Face of Conflicting Studies"

Keynote Speaker

Mr. Joseph Hauger '03
Senior Pollution Control Specialist, Minnesota Pollution Control Agency, Marshall Regional Office

Joseph Hauger graduated from Southwest Minnesota State University in 2003 with an Environmental Science major and Geology minor. He worked seasonally for the Minnesota State Park system from 2001 to 2004, and has worked for the Minnesota Pollution Control Agency, Marshall Regional Office, since 2005 where he is currently a senior Pollution Control Specialist. In his position as a watershed project manager, he coordinates scientific studies and implementation projects relating to water quality in watersheds within the Minnesota River basin.

Joseph has recently worked with University of Minnesota Extension Service to develop geology curriculum for the Minnesota Valley Learning Center. He has also worked with the Southwest/West Central Service Cooperative and SMSU Science Department faculty to design and teach science workshops for elementary educators. Joseph's interests include astronomy, geology, history and woodcarving. His free time is occupied by many hobbies relating to science and nature education. He is a Minnesota Master Naturalist program volunteer instructor and writes an astronomy column for his local newspaper.

Joseph's keynote address will discuss how ongoing studies of environmental quality help resource managers and the public understand more clearly the factors that govern environmental systems. However, complex natural systems are often difficult to fully understand, and incomplete understanding can lead to controversy, debate and demands for more research. This is especially true if the findings of different studies come to conflicting conclusions. This address will examine a few current Minnesota specific examples of conflicting research in the environmental field and its implications for resource management decisions.

Abstracts

Oral Session A – Upper Level Conference Center
Environmental Science, Biology Chemistry, Creative Writing and English

1
Title: Comparison of Macroinvertebrate and Planktonic Populations in a Newly Constructed Storm Water Holding Pond and an Existing Storm Water Holding Pond
Presenter(s): Jared Wagner
Advisor: Drs. Emily Deaver and Thomas Dilley, Environmental Science
Abstract: Stormwater holding ponds mitigate stormwater runoff issues and serve as habitat for aquatic species. A stormwater holding pond constructed in 2012 and a similar pond constructed in1976 in Marshall, MN were sampled summer 2013 for macroinvertebrates and plankton. Plankton samples were collected biweekly using a 153 µm plankton net, and macroinvertebrate samples were collected monthly using Hester-Dendy samplers June-September 2013. It was hypothesized that the older pond would have a higher diversity of organisms. It was also expected that both ponds would show a shift in dominant algal species from green to blue-green to diatoms over the study period. The Shannon-Weaver Diversity Index showed phytoplankton, zooplankton and macroinvertebrates were more diverse in the older pond. Data also showed differences in dominant species present between the ponds for all three types of organisms. Algal succession in both ponds showed seasonal shifts in dominance, although blue-greens were never abundant in the newer pond.

2
Title: Evaluation of Land Snail Populations in Deciduous and Coniferous Forests in the SMSU Wildlife Area
Presenter(s): Hannah Beeler
Advisor: Drs. Emily Deaver and Thomas Dilley, Environmental Science
Abstract: 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.

3
Title: Investigations of Radon Levels in Southwestern Minnesota
Presenter(s): Sharon Carlson
Advisor: Drs. Emily Deaver and Thomas Dilley, Environmental Science
Abstract: Radon is an odorless, radioactive gas originating from granite and shale type soils and is the second leading cause of lung cancer. Radon concentrations above 4.0 pCi/L are considered to be hazardous. Ten homes in SW Minnesota (Pipestone, Woodstock, Balaton, Marshall and Granite Falls) were sampled for radon levels using AirChek short-term sample kits. Testing was done in May and June 2013 and data collected documenting potential pathways of radon entry into the home. Results showed a variation in radon levels ranging from 1.5 pCi/L to 8.2 pCi/L. There was no consistent pattern of results between the 2 monthly samples-half the houses had higher concentrations in May than June, and the other half showed the opposite. Three homes were above the 4.0 pCi/L level for both months sampled and 4 homes were below that level for both months. No correlations were found between potential pathways and radon concentrations in the homes sampled.

4
Title: Seasonal Habitat Preference of Fish in Lake Cochrane, SD
Presenter(s): Greg Pavek
Advisor: Drs. Thomas Dilley and Emily Deaver, Environmental Science
Abstract: Seasonal habitat preferences of fish in Lake Cochrane were studied from May 15 to August 14, 2013. Four sample sites from 8 to 24 feet in depth were sampled once a week for 2 hours each; one hour in the morning and at night by sport fishing. The four sites were statistically different in terms of species and number of fish caught. The shallowest

site with abundant emergent vegetation was most productive with 75 fish caught. The mid-shallow with submerged vegetation produced 70 fish. The deeper sites had no visible vegetation with the mid-deep producing 32, and deepest only producing 3 fish. The study showed that bass prefer the shallows throughout the season and there were more fish caught in early summer. There was no statistical difference between sites for any other species of fish beside bass. This was primarily due to the small number of other fish caught.

5

Title: River Sand Composition Compared to its Bedrock Origin: South Platte River, Big Thompson River, Cache la Poudre River in Colorado and Nebraska

Presenter(s): Jaron Christenson

Advisor: Drs. Thomas Dilley and Emily Deaver, Environmental Science

Abstract: River sand composition should mirror the regional bedrock. A study was conducted by collecting eight sand samples from the South Platte, Big Thompson, and Cache la Poudre Rivers in Colorado and Nebraska. Mineral composition of the medium sand fraction was analyzed by point counting the amount of quartz, feldspar, hornblende, biotite, and muscovite using a binocular microscope. ANOVA and Tukey Tests were used to find statistical differences. All of the samples, when compared to each other, were statistically significantly different. Quartz dominated all of the samples ranging from 64.9% to 90.5%, with feldspar always the second most abundant from 8.6% to 18.5%. The Sample from West Platte River Road of the South Platte River, and the sample from Loveland, of the Big Thompson River were the most different when compared to the other samples. The results support the hypothesis that varying sand compositions do reflect the various source rocks.

6

Title: Classification and Abundance of Grasshoppers in the SMSU Wildlife Area

Presenter(s): Neal Maurer

Advisor: Drs. Emily Deaver and Thomas Dilley, Environmental Science

Abstract: Grasshoppers are major consumers of grassland vegetation and a dominant component of biodiversity in the grassland ecosystem. Numerous grasshopper species are found in Minnesota. A study was done in the SMSU Wildlife Area in Marshall, Minnesota August 2013 to determine the community composition and abundance of grasshoppers. A 12 x 30 m grassland area was divided into six transects (10 meters long and 5 meters apart). Grasshoppers were counted, measured, and identified. Seven species were captured with a total of 60 individual grasshoppers, with 72% of the organisms in the nymph stage. Analysis of variance showed no statistical difference between the number of individuals of the species collected, however, the red-legged grasshopper (*Melanoplus femurrubrum)* was caught in slightly higher amounts. A permanent collection of specimens was prepared as reference for future studies.

7

Title: Seed Color Preference by Birds in Southwest Minnesota

Presenter(s): Gillian Rolfe, Mary Groth & Hannah Beeler

Advisor: Dr. Betsy Desy, Biology

Abstract: Birds use their highly developed vision to aid in selecting mates and food items. The purpose of this study was to determine if local birds exhibit a seed color preference. In this study, platform feeders were filled with four seed choices: natural-colored seed, red, green and black. We observed birds for fourteen consecutive days, and recorded number of bird visits, bird species, and amount of seed consumed. Birds visited the natural-colored seed platform more than the dyed seed platforms. However, we found no significant difference in amount of seed consumed based on color. House sparrows and cardinals were the only species observed with the house sparrows being the most numerous. The natural-colored seed may have been consumed more because it closely resembles the primary food source of house sparrows.

8

Title: Frog Deformity Occurrence in Minnesota

Presenter(s): Bailey R. Andersen, Sirocco Peterson-Wahl & Theresa Ehnert

Advisor: Dr. Betsy Desy, Biology

Abstract: Frogs' semi-permeable skin makes them susceptible to environmental changes. This susceptibility makes frogs a useful bio-indicator of possible pollutants and changes in the environment. During development frogs have an aquatic embryotic stage and an adult terrestrial stage. Because of sensitivity during their lifecycle, frog populations around the world have been decreasing in size. In addition, over the past two decades, frog populations worldwide and in Minnesota have been showing more deformities. The purpose of this study was to summarize reported incidents of frog deformities in Minnesota. Deformed frogs were found in 172 locations in Minnesota between 1993 and 1996. Most deformed frogs were located in

southeastern Minnesota to central Minnesota, ranging to northwest Minnesota. Possible causes of deformities in frogs are chemical pollution, ultraviolent lighting, parasites, pesticides, and herbicides

9
Title: An Evening With Us: a Senior Portfolio Reading
Presenter(s): Samantha Lemmerman
Advisor: Marianne Zarzana, Creative Writing
Abstract: Samantha Lemmerman grew up in a small Minnesota town reading romance novels. With each book, she started to notice that there was more to romance than happy endings. Expanding upon the idea, her literary and creative non-fiction works explore the complex relationships people share with each other as well as animals.
.

10
Title: An Evening With Us: A Senior Portfolio Reading
Presenter(s): Justin Craigmile
Advisor: Marianne Zarzana, Creative Writing
Abstract:

11
Title: To Lie within a Truth: A Senior Portfolio Reading
Presenter(s): Anthony Caron
Advisor: Marianne Zarzana, Creative Writing
Abstract: Anthony Caron grew up in the small town of Faribault, Minnesota. He attended a private Catholic school from first through twelfth grade. When he wasn't playing sports, he was playing video games or reading fantasy and/or sci-fi novels. His religious influences, on both sides of for and against Christianity, heavily influence his work that most commonly deal with love, morality, and environmentalism.

12
Title: An Evening With Us: Senior Portfolio Reading
Presenter(s): Katie Schwarz
Advisor: Marianne Zarzana, Creative Writing
Abstract: Poetry is a hobby I have enjoyed pursuing in my education. However, I have also included two creative non-fiction pieces for my reading. The pieces I plan to read today cover many aspects of my personality. While deliberating which pieces to read today, I attempted to gather a collection of myself that didn't directly duplicate any subject. Through writing, I am able to put feelings into words that can otherwise become a mess if they stay isolated too long in my head. It makes me feel better, and also helps the readers feel better to relate to something similar, whether the subject matter is positive or not.

13
Title: The Effects of Urbanization on Benthic Macroinvertebrate Populations of the Redwood River in Marshall, MN
Presenter(s): Jared Wagner, Nischal Shrestha & Michael Mattick
Advisor: Dr. Betsy Desy, Biology
Abstract: Urbanization degrades the physical, chemical, and biological integrity of streams due to increasing stormwater surface runoff. Some macroinvertebrate taxa (EPT) are sensitive to stream habitat quality and can be used as a tool to assess stream health. The purpose of our experiment was to determine if the urbanization of Marshall affects the benthic macroinvertebrate populations of the Redwood River. Four Hester-Dendy samplers were placed in 20-30cm of water at three sites along the Redwood River near Marshall and left from September 12-October 6, 2013. We found a decrease in EPT Index score as well as an increase in diversity (H') of macroinvertebrate populations downstream. The urbanization of Marshall negatively affects EPT Index indicating a decrease in water quality. It also increases diversity due to inhibiting the dominance of sensitive taxa. In conclusion, the urbanization of Marshall does have an effect on macroinvertebrate populations of the Redwood River.

14
Title: Density and Diversity of Grasshoppers in Five Prairie Islands on SMSU Campus
Presenter(s): Courtney Lingen, Caitlyn Johnson & Manisha Prajapati
Advisor: Dr. Betsy Desy, Biology
Abstract: Grasshoppers are common pests that at high densities can damage vegetation. The purpose of this study was to estimate density and determine diversity of grasshoppers inhabiting five prairie islands around Sweetland Hall on the SMSU campus. We used sweep nets to catch, tag, and identify grasshoppers by species. Grasshoppers were released on three separate occasions during September 2013. We captured 1,554 grasshoppers belonging to six species. Using the Lincoln index we determined the following densities, 4,462 (area 1); 1,870 (area 2); 2,720 (area 3); 3,753 (area 4); and 7,008 (area 5). Using a chi-square test, we found a significant difference between species (chi-square>125, df=5, $P<0.01$). In conclusion, we identified six species and densities ranged from under 2,000 to over 7,000 per area.

15
Title: Vegetation Composition of Prairies at Camden State Park, Minnesota
Presenter(s): Mikeal Cooper, Nathanael Gratz & Ben Tonsager
Advisor: Dr. Betsy Desy, Biology
Abstract: Little data is available about the composition of prairies at Camden State Park in Southwest Minnesota. We aimed to determine the composition of several prairies, and hypothesized that species composition of a native remnant prairie at Camden State Park will not indicate significant variation between 1981 and 2013. We also sampled a reconstructed prairie for composition to determine if reconstruction efforts are representative of the remnant samples. We analyzed our data for frequency, dominance, relative dominance and density of all sampled plants. We compared our data to a study conducted in 1981 on the same remnant prairie. Based on these results we found a significant difference in composition between 1981 and 2013. We also determined that reconstruction efforts do elevate some native species, but overall composition is varied.

16
Title: Antimicrobial Activity of Three Species of Prairie Plants
Presenter(s): John Hammonds, Walker Schaar & Noble Ekuban
Advisor: Dr. Betsy Desy, Biology
Abstract: Plants from different ecological niches often have different biochemistry. Plants of different species may have differing levels of antibacterial properties which may affect plant disease susceptibility. Root extracts were made from the three plants of the genus *Silphium* (Cup Plant, Compass Plant and Prairie Dock). In order to test antibacterial properties, extracts were concentrated to 100 μg mL^{-1} and their antibacterial properties were tested using a disc diffusion assay against four common test bacteria. Extracts of oregano were made as comparisons with known antibacterial properties. Plants of the same genus were expected to have similar antibacterial properties. Results showed each root extract was statistically different in inhibiting the growth of the separate bacteria species.

17
Title: Evaluation of the Sikora Buffer Reagent as an Alternative to SMP in Estimating Soil Lime Requirement
Presenter(s): ReNae Clark
Advisor: Dr. Frank Schindler, Chemistry
Abstract: The standard Shoemaker, McLean, and Pratt (SMP) pH buffer reagent has traditionally been used to estimate soil lime requirement, but because of its toxicity, laboratories have been researching alternative methods. The Sikora buffer is less hazardous and may prove successful in estimating lime requirements for Southwestern Minnesota soils. If proven effective, the Sikora method will replace SMP as the routine buffer pH test at the SMSU Soil Testing and Characterization Laboratory. The objective of this study was to evaluate the Sikora Buffer Reagent as an alternative to SMP in estimating soil lime requirements. Seventeen soil types from Chippewa, Lac Qui Parle, Lyon, Redwood, Rock, and Yellow Medicine counties were collected and analyzed using both Sikora and SMP methods. The efficacy of the Sikora method in estimating lime requirements is discussed.

18
Title: Comparison of Endophytic PGPR Populations as a Factor for Invasiveness of Prairie Dock (*Silphium sp.)*
Presenter(s): John Hammonds
Advisor: Drs. Thomas Dilley and Emily Deaver, Environmental Science; Dr. Tony Greenfield, Biology
Abstract: Bacteria colonize intracellular space in plants, particularly through the roots. These endophytic bacteria often promote plant growth by production or inhibition of plant hormones, which influences competition. *Psuedomonas sp.* are known for siderohpore and hormone production, while *Azotobacter sp.* can fix nitrogen aerobically. Prairie dock (*Silphium terebinthicaceum)* is invasive to northern prairies, while Big Bluestem (*Andropogon gerardii*) and Stiff Golden rod (*Salidago ridiga*) are common native prairie plants. In order to compare populations of endophytic bacteria, root samples were taken from all three plant species, surface sterilized, pulverized, and platted on to selective nitrogen-free *Azotobacter* media and King's B diagnostic media. Colonies were counted, identified, and tested for indole metabolism. Prairie Dock was expected to contain the highest level of colonization of growth promoting bacteria, however Stiff Goldenrod was found have significantly more bacteria colonizing its roots, with higher counts of indole producing bacteria.

19
Title: Promoting Healthier Food on Campus
Presenter(s): Shoua Lee, Amber Casperson & Zia Vang
Advisor: Dr. Amanda Bemer, English

Abstract: The purpose of this report is to determine whether SMSU students know how much food they are consuming on a daily basis at the SMSU food court. Our research shows that the majority of SMSU students do not know how much they are eating at the food court. After analyzing, we argue that the best way for students to be informed is to post pictures around the campus. These pictures will show what the students are eating at the food court and the nutritional value. Our research plan includes three phases: (1) interviews, (2) surveys, and (3) look for articles. From our research, and interviews with SMSU professors of science and health we have gathered information on why people buy, and don't buy, healthy food in comparison to unhealthy food. In conclusion, we believe that posting up nutrition information for SMSU students will help them know what they're consuming.

20
Title: Recommendations for Sustainable Stormwater Management at SMSU
Presenter(s): Jessie Fitzer, Caci Lingen, Rebecca Radtke & Rebecca Suter
Advisor: Dr. Amanda Bemer, English
Abstract: A bio-filter is a system that utilizes plants and soils to decontaminate polluted water. There are several types of bio-filters used to purify stormwater including bioswales, rain gardens, vegetated filter strips, downspout planters, and many more. Recently, bio-filters have been used by many institutions to manage stormwater runoff around their complexes, and biofiltration systems have also been incorporated into the waste management practices of several cities. In order to make a recommendation, background research was done on the mechanics behind bio-filtration systems; case studies of communities that have installed bio filters were examined; and environmental science professors, the SMSU physical plant manager, public safety, and community organizations were interviewed. The research suggests that the installation of bio-filters at SMSU would help create a more sustainable campus by creating future clean water security for the community.

21
Title: Improving Campus Health by Offering More Group Physical Activities
Presenter(s): Emily Kubesh, Alex Kircher & Hope Bonlander
Advisor: Dr. Amanda Bemer, English
Abstract: One way to improve campus health is to offer more group physical activities. Interviews with the Exercise Science Program and Intramurals Director are conducted, along with a survey of students and research of other school's intramural programs. This research supports the idea that more intramurals and group activities should be incorporated on campus.

22
Title: Sustainability Awareness: Campaigning for a Sustainable Campus through Monthly Goals
Presenter(s): Ryan Punke, Greg Pavek & Ashley Slyter
Advisor: Dr. Amanda Bemer, English
Abstract: Creating sustainability everywhere can have a huge influence on the environment and the living conditions for this generation and the next. Sustainability at SMSU is just as much of a concern. Through discussions with professors, clubs, businesses and online research this study will provide step by step action and information needed to apply goals towards sustainability. There will be 3 main focus areas on usage: paper, outlet power and lights. Each focus area is assigned to one month during the fall semester of 2014. With these goals, the suspected outcomes are costs cut in all three areas, new students drawn to SMSU and awareness and improvement of sustainability on the campus. With this information it is recommended that action take place for sustainability awareness. With "Save a Tree September," "Outlet October," and "No Lights November", a start to creating sustainability on the campus of SMSU is a very possible outcome.

23
Title: SMSU & YMCA Partnership for University Fitness
Presenter(s): Samantha Neyens, Dylan Shoemaker, Daniel Hansen & John Bister
Advisor: Dr. Amanda Bemer, English
Abstract: Due to overcrowding, lack of availability and the size of the current fitness center at Southwest Minnesota State University, a partnership with the YMCA would accommodate students and staff who are seeking more fitness options. A partnership with the YMCA is financially viable and students of SMSU can gain hands-on experience using the resources that the YMCA has to offer. Students and staff would be able to use the YMCA facilities at a lower cost for their fitness and curriculum needs. Surveys indicate a need for more fitness opportunities outside of what the University currently offers. Other schools have had success with YMCA partnerships as well as community success with the Marshall YMCA and Schwan's. Research of these and other successful partnerships help support the feasibility of implementation. Our recommendation, supported by interviews with staffing at the YMCA and SMSU, is that a

partnership would help address problems with accessibility.

24
Title: Requirements for a Healthier "U"
Presenter(s): Adam Hawkinson, Olivia Garrett & Brittany Sallee
Advisor: Dr. Teresa Henning, English
Abstract: The purpose of this presentation is to determine how the concept of "Mind, Body and Spirit", as explained in Outcome 10 of the Liberal Education Program (LEP) Outcomes for 2013-2014, can be integrated as a theme for one section of a First-Year Seminar (FYS) course at Southwest Minnesota State University. Our hope is that this particular course can educate students to think critically about their individual wellness. Research findings from interviews, scholarly journals, and SMSU curriculum documents suggest that while the idea of wellness is being covered in some courses across the university curriculum, it could be more developed as an individual theme for first-year students.

25
Title: Use of Sustainable Energy to Lower SMSU's Energy Costs
Presenter(s): Cole Hegstad, Colter Fortenberry, Jade Tonding & Caleb Heim
Advisor: Dr. Teresa Henning, English
Abstract: The purpose of this presentation is to determine if implementing wind energy is a viable option for SMSU. After conducting a cost-benefit analysis and considering placement, we argue in our presentation that at least a percentage of our power can be supplemented through the use of wind turbines. Our research plan included 5 phases: (1) gathering information from library databases on wind energy, (2) analyzing the energy needs of SMSU, (3) researching possible location options, (4) interview stakeholders and experts, and (5) analyze the appropriate amount of power to be subsidized by wind turbines. Analysis concludes that the benefits of installing three 100kW wind turbines on the SMSU campus would outweigh the initial startup cost.

26
Title: Healthy Solutions for SMSU
Presenter(s): Kailey Hanson, Alison Nagel & Terrance Maier
Advisor: Dr. Teresa Henning, English
Abstract: The purpose of this presentation is to determine if a public workout program at SMSU would be beneficial in making the campus community healthier. Our research plan included five phases: (1) developing evaluation criteria, (2) gathering information on public workout programs, (3) analyzing the needs to make the program possible, (4) interviewing SMSU professors and surveying students, and (5) analyzing the success of other universities who have tried these programs. After investigating the benefits of group exercise, other successful workout programs, and the opinions of people on campus, we argue that SMSU students would benefit from an open workout program.

27
Title: Providing Healthier Food at SMSU
Presenter(s): Tyler Anderson, Natascha Watercott & Garrett Conn
Advisor: Dr. Teresa Henning, English
Abstract: The purpose of this presentation is to determine ways in which SMSU can feasibly provide healthier food options and allow students to make more informed food choices. Our research consisted of (1) conducting personal interview(s) with food services staff, (2) issuing a survey to the student body and analyzing the data, (3) and gathering and organizing research from our sources. From our research, we have determined that the rotation of food options through substitution would be a viable option. We have also determined that providing eye appealing displays of nutritional information through the use of posters and/or signs is an efficient way of creating nutritional awareness in students. These methods have the benefit of being both easy to implement and inexpensive.

28
Title: Increasing Physical Fitness on Campus by Establishing Fitness Clubs on Campus
Presenter(s): Emily Klima, Holly Erickson & Neal Maurer
Advisor: Dr. Teresa Henning, English
Abstract: The purpose of this presentation is to encourage students to be more active. We propose starting fitness clubs on the Southwest Minnesota State University campus. Our research plan included (1) developing our idea for the clubs, (2) gathering information, (3) analyzing the benefits of the club, (4) interviewing faculty and survey students, and (5) conducting research. Scholarly journals suggest that there are health and academic benefits to exercise. Using the journals, we designed a survey to find out if students were interested in the clubs. The surveys showed that many students did think the clubs would be beneficial, and they would exercise more. The most popular of our proposed clubs was weight-lifting, but there was also support for swimming and self-defense. In conclusion, we received positive

feedback from the students, which leads us to believe that our clubs would gather support from the campus community.

Oral Session B- CH 201
Art History, Exercise Science, History, Political Science, Sociology and Theatre

29
Title: Illuminated Manuscripts Poster Design
Presenter(s): Jayme Wiertzema, Kiley Beste & Rachel Frerich
Advisor: Dr. Pat Brace, Art History
Abstract: We were given the scenario of designing a color poster, a two sided postcard, and an ad for an event for MAFAC on 25 Famous Medieval Illuminated Manuscripts. Things to consider were the overall uniting visual theme throughout all three designs, designing with the medieval manuscript style, using a gothic style font, and an image from a manuscript. Our images came from La voie de Povrete ou de Richesse (The Way of Poverty or of Wealth), created by Fastolf Master (1425-1450). Using the medieval characteristics of initial elaboration and diminuendo, we created three unified designs that satisfy the client requirements, but also put a modern twist to the medieval style to create visually appealing designs.

30
Title: MAFAC Medieval Illuminated Manuscript Poster Design
Presenter(s): Maria Gilland, Caitlyn Schultz & Stephanie Wisdom
Advisor: Dr. Pat Brace, Art History
Abstract: Illuminated manuscripts are manuscripts that are elaborately decorated with illustrations, borders, and initials, often in silver, gold leaf, and brilliant colors. Images typically corresponded with the text. Illuminated manuscripts were often found in medieval Europe. We have taken the traditional illuminated manuscript style and modernized it to be appropriate for use in promotional materials for a fantasy exhibit for the Marshall Area Fine Arts Council. A modernized image from the Tunc crucifixerant Xpi, which is featured in the Book of Kells (800 CE), is used throughout the advertising materials. We hope you enjoy our work!

31
Title: Rape Realities: Portrayal of Rape in News Media
Presenter(s): Lauren Teal
Advisor: Dr. Cindy Aamlid, Sociology
Abstract: The current study of rape portrayal on broadcast news stations running during 2012-2013 seeks to identify the representation of women and the likelihood of slut culture or slut shaming taking priority in the articles. The selected articles were chosen from three mainstream media outlet news stations: Fox News, NBC News, and ABC News. The stories are then coded based on Helen Benedict's (1992) identification of eight factors that question the level of responsibility of the victim and incite a blaming ideology by the media. This is used alongside with myths that are surrounding both the female gender and the rape stereotype identified by Diana Russell (1984). The research plans to explore if and how media portrays and identifies rape and the significance of that to the selected audience.

32
Title: How Much is Too Much Before Driving?
Presenter(s): Holly Mikkelson
Advisor: Dr. Cindy Aamlid, Sociology
Abstract:

33
Title: Minnesota Sex Trafficking
Presenter(s): Sylvia Patton
Advisor: Dr. David Sturrock, Political Science
Abstract: Minnesota is leading the way to raise awareness of sex trafficking. Minnesota has established some legislation and programs that considers individuals as victims rather than criminals. Sex trafficking, a global epidemic, has affected communities of all sizes throughout Minnesota. By examining past government policy and recently-adopted legislation this study attempts to determine how Minnesota is addressing this serious social problem. It also undertakes a cost-benefit analysis of program services and their effectiveness, and includes insights from experts in this field regarding expectations from recent legislation and potential problems with its implementation. Finally, this research is intended to show that children and women are the primary victims of sex trafficking, and that programs and services should be tailored to meet their individual circumstances.

34
Title: Situation Comedies from "Father Knows Best" to "One Day at a Time": Social Consciousness Comes to Television

Presenter(s): Sarah Lee
Advisor: Dr. Joan Gittens, History
Abstract: Situation comedies from the 1950s to 1970s explored social problems such as The Vietnam War, environmental conservation, the fight for civil rights, and the second wave of feminism. In the 1950s the writers of these shows described the idyllic adolescent girl that everyone strived to be. As the years went on, the shows changed their messages to reflect the movements and issues occurring in society. "Father Knows Best" (1954-1960) represented the stereotypical view of a teenage girl and the problems related solely to the family. "One Day at a Time" (1975-1984) represented the cultural changes by portraying a divorced mother raising her two teenage daughters. From the father knowing best to working on surviving life one day at a time, the decades between these shows represented a shift in the messages of the writers and the changes in feminine culture. The primary sources for this research were the television shows themselves.

35
Title: Perceptions of the Physically Disabled in Movies
Presenter(s): Laura Bautch
Advisor: Dr. Cindy Aamlid, Sociology
Abstract: The purpose of my research project is to examine the trends of treatment that physically disabled characters are subjected to in movies. I have chosen five films in which I have reviewed clips from that the physically disabled characters are present in. While watching these clips, I was looking for certain traits that the disabled characters displayed. Some of these included pitiable, burden, and sinister. When I came across any of these traits, I marked them off on my checklist. Along with reviewing movie clips, I researched articles related to the topic of disabled characters in movies to gain background knowledge on the subject.

36
Title: Difference of FMS Testing between Female Recreational Dancers, Trained Athletes, and Non-Athletes
Presenter(s): Stephanie Ahlschlager & Karen Kremer
Advisor: Dr. Kris Cleveland, Exercise Science
Abstract: We sought to determine the performance of female recreational dancers, trained athletes, and non-athletes on a functional movement screening (FMS). The FMS test is scored on a scale of 0 to 21 possible points. Fifteen subjects age 18-22 years were divided into three separate groups based on participation in dance, sports, or neither. The subjects completing the FMS test were a sub-group of a larger study. Each subject preformed the FMS test one time. For FMS raw scores, there were no significant differences (P=0.52) between recreational dancers (12.6 ± 1.52), trained athletes (13.2 ± 3.42), and non-athletes (11.2 ± 2.77). This suggests that the type of exercise performed may not affect movement ability. Future research should investigate the duration of exercise in a week or the effects of aging on functional movement related to the groups tested in this study.

37
Title: Illuminations through the Dark Ages
Presenter(s): Gabrielle Cohrs, Katie Grebinoski & Anna Berman
Advisor: Dr. Pat Brace, Art History
Abstract: The main motivation of this piece was to create a poster, post card and newspaper ad that correctly show cased a potential exhibit on Illuminated manuscripts created during the medieval time period. The piece we created was designed to capture the viewer's attention through an interesting manuscript and playful title. The method that we used to achieve this was first researching famous illuminations that were eye-catching, selecting one from the gospel of Matthew. We proceeded to draw inspiration from the image to create our poster using the Adobe Creative Suite Software, Illustrator and Photoshop, drawing colors from the original manuscript and using text similar to the type already displayed in the piece. Completing the large poster first, we modified the size and color scale to present a postcard and newspaper ad. Overall, our piece successfully presented an exhibit showing illuminated manuscripts, the design was successful in grabbing attention while staying true to the original piece.

38
Title: Reasoning/Meaning Behind Tattoos
Presenter(s): Amy Karlstad
Advisor: Dr. Cindy Aamlid, Sociology
Abstract: Tattoos have become more commonplace in our culture, and I was interested in knowing if there was more to tattoos than just what we can see as ink on one's body. My study on tattoos explored the reasons and meanings attached to tattoos. The previous research on tattoos revealed that people get tattoos for the following reasons: honoring someone, self-expression, just because, sentimental, or to rebel against their parents. The survey was given to a convenience sample of college students. Preliminary findings are that students received tattoos as a motivation to express themselves through their tattoos. The significance

of the meaning of a tattoo for an individual was to construct the self-identity by having their tattoos part of their personality for self-expression.

39
Title: Economic and Environmental Impact of Aquatic Invasive Species in Minnesota
Presenter(s): Will R. Kurka
Advisor: Dr. David Sturrock, Political Science
Abstract: In the summer of 2013 Asian carp carcasses were discovered near the locks of the Mississippi River in Minnesota. The ensuing concern over the integrity of Minnesota's waters resurfaced the issue of aquatic invasive species, which has gained prominence in the last 20 years. This research examines the environmental and economic impact pertaining to the spread of aquatic invasive species in Minnesota. It also seeks to identify the major political players and possible funding sources in the fight for clean waters in Minnesota. The report also addresses potential pitfalls to the state's current treatment plan and utilizes information from various public and government reports, as well as information from newspapers and interest groups. Finally, it proposes a normative plan of action for Minnesota.

40
Title: Muhammad Ali: From the "Louisville Lip" to the "Peoples Champion"
Presenter(s): Richard Johnson
Advisor: Dr. Joan Gittens, History
Abstract: During the 1960s, a decade which witnessed much turmoil, boxing champion Muhammad Ali fought a battle outside the ring which has made a lasting impact on his legacy today. After winning the Heavyweight Championship in 1964, the loquacious fighter, known as the "Louisville Lip," became the subject of controversy outside the ring. His unpopular involvement with and support for Elijah Muhammad and the Nation of Islam, along with his refusal to obey draft orders, proved to be a battle Ali would have to face without the help of his fists. As the issues of Civil Rights and the Vietnam War became more prominent, the public's perception of him changed, allowing him to stand up for his religious beliefs and become "The People's Champion." The research for this project was conducted using primary sources such as newspaper and magazine articles from the 1960s, along with secondary sources about Ali's life.

41
Title: Churchill: His Views on Communism from 1917-46
Presenter(s): Rob Wedl
Advisor: Dr. Joan Gittens, History
Abstract: Winston Churchill was Prime Minister of Britain from 1940 to 1945. Widely regarded as one of the greatest wartime leaders of the 20th century, Churchill was also an officer in the British Army, a historian, a writer, and an artist. He was also a fervent anti- Communist. From the Russian Revolution in 1917 until the end of his life, he spoke out against the spread of Communism.This project looks at Winston Churchill's views of Communism from 1917-1946. His most famous denunciation of Communism came in the Fulton, Missouri speech of 1946 where he uttered the famous line "From Stettin in the Baltic to Trieste in the Adriatic an 'iron curtain' has descended...." . The sources for this project were Churchill's speeches, his correspondence, and his histories and other writings.

42
Title: 1986 Immigration Reform and Control Act
Presenter(s): Victor Montelongo
Advisor: Dr. Joan Gittens, History
Abstract: In the present day, the Congressional opposition to immigration reform is seen as essentially Republican. In 1986, this was not the case. Republican Senator Alan K. Simpson and Democratic Representative Romano Mazzoli from Kentucky were able to pass the Immigration Reform and Control Act through a Republican Senate and have it signed by a Republican President. This was possible because the act aimed to limit illegal immigration into the United States and to preserve American jobs, ideas that both the right and the left could agree on. Simpson and Mazzoli's personal experiences with immigration led them to include an amnesty provision which gave the possibility of American citizenship to approximately upwards of two million people. The story of the passage of The 1986 Immigration Reform and Control Act is drawn from legislative documents and contemporary newspapers and magazines.

43
Title: Bad Romance and Good Conversations: An Exploration of the Primary Relationships in *Fifty Shades of Grey* and *Twilight*
Presenter(s): Samantha L. Lemmerman
Advisor: Marianne Zarzana, Creative Writing
Abstract: moved to poster #98

44
Title: Truman and "The Old Soldier": Public Reaction to the Firing of Douglas MacArthur
Presenter(s): Jacob Rigge
Advisor: Dr. Joan Gittens, History
Abstract: In 1951, President Truman relieved Douglas MacArthur as Commander of United States forces in the Korean War for his ongoing disrespect toward his superiors. This firing is a classic example of civilian rule over the military. I wanted to study the public's reaction to this event. To study public reaction I had to take in many forms of media. The most useful were magazines and newspapers from the time period. My most significant finding was that the people of the United States welcomed MacArthur home as a hero, but over time his hero status faded amongst the civilian population. This shows that, although the people of the United States supported MacArthur at one point, eventually they understood the importance of civilian control over the military. It also shows that a new era of United States' foreign relations would be different, and the American public would grow frustrated with it quickly.

45
Title: Port of Duluth Expansion
Presenter(s): Rodney Hoffbeck
Advisor: Dr. David Sturrock, Political Science
Abstract: The Port of Duluth is a vital outlet for trade and raw materials for not only the Upper Midwest but the entire country, handling 36,673,052 tons in 2012. The Port Authority is now planning a $16 million dollar expansion and modernization. This project will create a projected 2,000 permanent jobs in Duluth and up to 11,500 other jobs across the Midwest. This growth will result in $545 million in wages and $1.5 billion in business revenue. Half of the project funding will come from a federal Tiger Grant, with Minnesota DOT and Duluth Port Authority providing the balance. This study analyzes the political and administrative environment in which the funding decisions were made, and the likelihood that the promised benefits will be achieved. Quantitative and qualitative information has been gathered from journalistic accounts, official agency documents and interviews with project officials.

46
Title: Upper Minnesota River Valley Conservation and Recreation Area
Presenter(s): Michael W. Vogt
Advisor: Dr. David Sturrock, Political Science
Abstract: The Upper Minnesota River Valley is one of this region's most precious natural and economic resources. This beautiful area between the Upper and Lower Sioux Indian Reservations sometimes referred to as "the boundary waters of the south" has suffered from having a scattered series of public lands spread across different government jurisdictions with no cohesive management or objectives. Much of my research focused on the Citizens Advisory Committee created by the commissioner of the Minnesota DNR and the process they used to bring together local land owners, local governments, and the State government to create goals for the creation of an Upper Minnesota River Valley Conservation and Recreation Area. This has the potential to increase economic activity in the area due to increased tourism and recreational use as well as making management more efficient and effective.

47
Title: Minnesota Sex Offender Program
Presenter(s): Melissa Talley
Advisor: Dr. David Sturrock, Political Science
Abstract: The Minnesota Sex Offender Program affects the state in a broad way through the 698 individuals currently housed within its treatment facilities and the implications of denying their constitutional rights through indefinite civil commitment within this program. To understand the scope of this problem it is essential to note the unpopularity of discussing constitutional rights of convicted individuals as a sexual psychopathic personality or as a sexually dangerous person, considering the possibility they may overshadow some public safety concerns. As the means to study this topic, I read news stories, studied the MSOP through Minnesota Statutes and the rules of the MSOP, interviewed an assistant county prosecutor, interviewed a deputy sheriff and gathered information through the Minnesota Department of Human Services, which administers the MSOP.

48
Title: Vehicle Training Expansion Center
Presenter(s): Pal G. Deng
Advisor: Dr. David Sturrock, Political Science
Abstract: The Marshall Emergency Response and Industrial Training (MERIT) Center is building a vehicle training center which will serve private and public sector clients in Minnesota and neighboring states. Funded by a mix of local sales tax revenue and state bonds, the VTS will include a driving course, classrooms and offices, skid pad, and driving training simulators. The estimated total cost is $7.5 million. This study will use newspaper accounts, MERIT Center documents and interviews to assess the benefits that the VTS is supposed to bring to Marshall and surrounding regions by reducing the rate of rural auto accidents, which far

exceeds those for urban areas; dollars spent by VTS students for lodging, meals and retail shopping; and by replacing numerous local law enforcement agency vehicle training venues, which include public and private parking lots, dirt parcels, and even airport runways.

49
Title: The Application Process: Cake vs. Crème Makeup
Presenter(s): Sara Marie Mills
Advisor: Sheila Tabaka, Theatre
Abstract: There are many different versions of stage makeup, each having its own benefits and disadvantages. Cake makeup and crème makeup are two of the most common versions of stage makeup. This presentation will guide you through the advantages and downfalls of the application of each.

Abstracts

Poster Session A – Biology, Chemistry, Computer Science, Exercise Science, Liberal Education Program, Mathematics

1
Title: Late Onset of Group B Streptococcus Infection Caused by the Ingestion of Infected Breast Milk
Presenter(s): Roma kc
Advisor: Dr. Tony Greenfield, Biology
Abstract: Group B streptococcus (GBS) infection has been a major cause of neonatal sepsis and meningitis. The cause of early onset GBS disease in infants is associated with vaginal delivery; however the cause of late onset infection was largely unknown. Several case studies used RAPD and RFLP analysis to demonstrate that late onset GBS infection was transmitted to the infants by breast feeding. 90 % of late onset GBS infections result from strains possessing the GBS Capsular polysaccharide (CPS) type III. Lemire *et.al* (2012) found that encapsulated GBS had a higher survival capacity compared to the GBS deficient of CPS, and that encapsulated GBS strains could modulate the production of pro-inflammatory cytokines produced by dendritic cells. These studies suggest that breastfeeding of infants should be closely monitored and often screened for GBS CPS type III strains to reduce the risk of late onset infection.

2
Title: *Ab Initio* Calculations of Carbon-Chlorine Bond Energy in Simazine Using Spartan
Presenter(s): Angela Wieland
Advisor: Dr. John C. Hansen, Chemistry
Abstract: Simazine is a common broad-leaf and annual grass herbicide used worldwide, which inhibits photosynthesis by redirecting electrons and reducing its form. The mechanisms of these reactions are not fully understood. The computational chemistry program, *Spartan*, was used to calculate energies, equilibrium geometries and carbon-chlorine bond strengths for each step of a proposed mechanism for the 2-electron reduction of Simazine. A DFT/B3YLP model with a 6-31G* basis set was used. It was found that, in a highly acidic solution, Simazine can be reduced and protonated to a more stable form through dechlorination. Our results show that, in the isolated molecule, the C-Cl bond is unstable after protonation. While these calculations do not give definitive proof, they suggest possible mechanisms for this reduction.

3
Title: The Effects of Static Arm Stretching on Upper Body Ergometer Performance in Wheelchair Athletes
Presenter(s): Samantha Becht & Katlin Fuhs
Advisor: Dr. Jeff Bell, Exercise Science
Abstract: Stretching is part of most athletic teams' pre-performance routines. Due to physical limitations, wheelchair basketball athletes (WBA) rely on their upper-body, specifically their arms and shoulders to generate power. Six SMSU WBA were selected to perform a 1-minute Wingate test on an arm-ergometer with and without static stretching. All subjects had played on a sanctioned college team within two years prior to testing. Maximal workload, power decline, rating of perceived exertion, and maximal heart-rate were collected for each subject. The testing sessions were completed 48 hours apart and the trial orders were randomized. In trial1, the subjects did not stretch before and in trial 2, they completed a series of standardized static stretches. There were no significant differences in any variables tested. In conclusion, stretching before performing high-intensity exercise may not be beneficial for WBA.

4
Title: Australian Funnel-web Spider Venom δ-Atracotoxin Effects on Sodium Channels
Presenter(s): Sirocco Peterson-Wahl
Advisor: Drs. Vaughn Gehle and Pam Sanders, Biology
Abstract: Australian funnel-web spider venom contains a large number and variety of components with a wide range of pharmacological actions and targets. The vertebrate-specific toxins responsible for envenomation symptoms include the atracotoxins δ-ACTX-Ar1 and δ-ACTX-Hv1a. Two studies are presented to elucidate their specific action on voltage-gated sodium channels and to describe that of a novel toxin, δ-ACTX-Hv1b. Using purification and binding assays, Little *et al.* (1998) determined that δ-atracotoxins targeted and competed for neurotoxin receptor site 3 of mammal and insect voltage-gated sodium channels. Szeto *et al.* (2000) purified and sequenced δ-ACTX-Hv1b toxin, and performed a bioassay and voltage-clamp studies, finding that the toxin acts like other δ-ACTXs. Persistent investigation of funnel-web spider venom

components may continue to provide insights into their action and provide for possible pharmacological and insecticidal developments.

5
Title: Effects of Flexibility on Vertical Jump
Presenter(s): Matt Zager, Vinard Birch & Jordan Buddenhagen
Advisor: Dr. Jeff Bell, Exercise Science
Abstract: Vertical jump (VJ) is a major component in many competitive sports; those who are able to jump higher compared to others seem to have an advantage over those who don't. Anecdotal evidence suggests that those who are more flexible may have a greater VJ. To test these hypothesis 24 subjects performed two flexibility tests and a VJ test. The flexibility tests included sit-and-reach (SNR) and hip flexion measured with a goniometer. Hip flexion was not correlated with VJ ($r = -0.028$, $p = 0.90$) but sit and reach was significantly correlated ($r = 0.53$, $p < 0.01$). Therefore, participants were separated into tertiles and tested via analysis of variance. VJ was lower in least-flexible compared to most-flexible subjects (60.9 ± 3.3 vs. 68.7 ± 8.1 cm, $p < 0.03$). Hip flexion had no significant correlation with VJ but SNR seems to affect to VJ ability. In conclusion, lower-back flexibility should be included in workouts and preparation for athletes that need VJ ability.

6
Title: Mytify
Presenter(s): Brandon Jenniges & Sanjeeb Bajracharya
Advisor: Drs. Dan Kaiser, Shushuang Man, Kourosh Mortezapour, Computer Science
Abstract: Twitter has been an amazing revolution for so many reasons. However, one of the downfalls with Twitter is that often times one has to sift through countless messages that are undesirable. Our goal was to create an application like Twitter, which allows the user more control over what type of messages they receive and when they receive them. We decided to achieve this goal by creating an Android application that can communicate with a cloud server that contains countless messages. By using this Android application, users can subscribe to many different categories and choose when they would like to receive messages of that category. This results in the user only getting messages that they're interested in.

7
Title: Allelopathic Effects of Garlic Bulb Extract in Different Concentrations on the Mustard Plant Length and Its Shoot Biomass
Presenter(s): Juni Lama & Molley Glidden
Advisor: Dr. Pam Sanders, Biology
Abstract: Allelopathy refers to the chemical inhibition of one species by another. Previous researchers found that Garlic (*Allium sativum L.*), has an allelopathic effect on many crop plants. We hypothesized that Garlic would inhibit the growth and decrease biomass of the Mustard (*Brassica juncea*). 15 Mustard green seedlings were divided into three groups of five and treated with 0 gm/pot, 1 gm/pot and 2 gm/pot of Garlic. Shoot length was recorded two times a week for 5 weeks and biomass was taken at the end of the experiment. Garlic extract had no significant effect on mustard green shoot height. Also Garlic extract did not have any significant effect on biomass of mustard green. These results indicated that Garlic bulb extract had no significant allelopathic effect on Mustard green shoot length and biomass.

8
Title: Real-Time Agent Simulation
Presenter(s): Reid Alsworth
Advisor: Dr. Dan Kaiser, Computer Science
Abstract: The purpose of this project is to develop a computer model of a simple ecosystem. Computer modelling has many real world applications in the realms of science and engineering. The simulation was devised by constructing simulated "agents", computer entities that exhibit preprogrammed behaviors and are able to produce and consume resources in the simulated environment. These agents must be able to select the correct behavior for a situation from the collection of all available behaviors. The agents are able to seek and process "food" resources as well as evade hazards in the environment. The environment of the simulation is visualized in real time 3D using the Unity3D engine. The simulated environment is abstract with no application to a real world environment but the simulation engine is able to be expanded and repurposed to model a real world environment.

9
Title: Casino Game in Python
Presenter(s): Ronald Enno
Advisor: Dr. Dan Kaiser, Computer Science
Abstract: This project is a game that consists of four different casino type games. I chose to do this particular project because it seemed like a project that was long enough and challenging enough for my level of programming. I approached this project by breaking it up into five pieces. One piece for each different game and one for the rest of the coding that needed to be done. This helped me to get certain sections of it done in a timely manner. For this program I had two big things that I needed to

research, algorithms and graphics. I used different online resources for the research. I think that this project is a good stepping stone that will lead to more challenging projects in the future.

10
Title: The Effect of Sleep Deprivation on Determinants of Sports Skills
Presenter(s): Adam Bock, Samuel Metras & Michael Pick
Advisor: Dr. Jeff Bell & Kris Cleveland, Exercise Science
Abstract: This study sought to examine the effects of sleep deprivation (SD) on determinants of sports skill: explosive power, balance, functional movement, and reaction time. Balance and functional movement were measured via a Y-balance test and a Functional Movement Screening (FMS). The study utilized 12 college-aged subjects ranging from 18-23 years of age (7 female, 5 male). Subjects were kept overnight and divided into three groups with different times in a resting/sleeping state: group A – 4 hours, group B – 6 hours, group C – 8 hours. The results indicated that FMS ($p=0.985$) and explosive power ($p=0.335$) were unaffected by SD. There was a trend for change in Y-Balance in the left leg ($p=0.185$) and right leg ($p=0.154$), as well as a trend for increased reaction time ($p=0.087$). The study may have been underpowered and needs additional subjects to determine whether these trends are significant.

11
Title: A Rock Solid Education: All Year Long
Presenter(s): Kristina Honken
Advisor: Dr. Will Thomas, Liberal Education Program
Abstract: In an attempt to reduce the amount of learning lost over summer, many schools have turned to year-round schooling. Summer brings fun, vacations, and camps for some, while others worry about being fed and cared for. Few learning opportunities are available for lower income families over the summer break and these students are less likely to retain the information they learned in the spring until school begins again in the fall. Year-round schools are on the rise and may be the key to higher academic progress, better retention, and less reteaching. There are more than 2.3 million U.S. public school students attending year-round schools today compared to the 360,000 enrolled in 1986-87. Join me as we look at the positive and negative sides year-round schools, the ways they have changed over the years, and the different types being implemented today.

12
Title: Allelopathic Effects of Onions on the Height and Dry Weight of Cowpeas
Presenter(s): Katlyn Sandbulte & Monica Fales
Advisor: Dr. Pam Sanders, Biology
Abstract: Allelopathy is the negative effect of one plant species on another through the production of allelochemicals. It was hypothesized that onions will allelopathically reduce the shoot height and dry weight of cowpeas and that differing methods of applying the onion will not affect the severity of these allelopathic effects. Over a three week period, onion (*Allium cepa*) was applied to four treatment groups of cowpeas (*Vigna unguiculata*) as a 100g/L extract, in small pieces above ground, in small pieces underground, and not at all for a control. Neither the height nor dry weight of the cowpeas showed a significant difference from the control, giving the conclusion that onions have no significant allelopathic effect on cowpeas and differing methods of application did not vary in their effects.

13
Title: Possible Mechanisms of Intravenous Immunoglobulin in the Amelioration of Immune Thrombocytopenic Purpura
Presenter(s): Rachel Patnoe
Advisor: Drs. Vaughn Gehle and Pam Sanders, Biology
Abstract: Immune Thrombocytopenic Purpura (ITP) is an autoimmune blood disorder characterized by an isolated low platelet count, mucosal bleeding and bruising. Intravenous Immunoglobulin (IVIg) is one effective treatment for many autoimmune disorders. Possible mechanisms of action of IVIg on ITP are unclear. This poster reviews two studies that test possible mechanisms of action of IVIg in the amelioration of ITP. Kurklander and Hall (1986) studied the effects of IVIg on Fcgamma receptors of leukocytes within the mononuclear phagocyte system. They concluded that IVIg ameliorated immune clearance in mice by competing for the Fcgamma receptor binding sites. Crow et al., (2013) examined the role of dendritic cells on toll-like receptors in the amelioration of murine ITP. They discovered that the mechanism of IVIg works independent of the Myd88 signaling pathway. The mechanism of IVIg on ITP is still unclear, and may be a combination of several suggested pathways.

14
Title: Designing an Unmanned Forklift
Presenter(s): Christopher LaScotte & Joel Phillips
Advisor: Dr. Dan Kaiser, Computer Science
Abstract: The goal of this project is to create an unmanned forklift. A program will be created that

utilizes an A* (pronounced “a-star”) path-finding algorithm to find the most efficient path to the desired target location which is input by the user. It then takes those coordinates, converts them to commands, and has the commands executed by the forklift to reach the target location. A job queue will allow the user to input multiple tasks for the program to execute. The real world application of this project would allow a warehouse to continue operations at lower costs with less human capital required.

15
Title: Hotel Management System
Presenter(s): Lynn Lafky & Dyreen Nyagesuka
Advisor: Drs. Daniel Kaiser, Shushuang Man, Kourosh Mortezapour, Computer Science
Abstract: This poster demonstrates a hotel management system programmed in Java with a database in SQL. This system is made to make reservations to a hotel, check someone in and out, and keep track of clean and dirty rooms done by housekeeping. The database keeps track of the rooms in the hotel and determines which rooms are clean or dirty and which rooms are vacant or occupied. The GUI displays the information from the database and makes any necessary changes to the data.

16
Title: Balance in Recreational Dancers Compared to Two Control Groups
Presenter(s): Alyssa Carmany, Heidi Krueger & Kelsey Verdoes
Advisor: Dr. Jeff Bell, Exercise Science
Abstract: Balance is important to activities of daily living and is known to decline due to aging. It is possible that different types of physical activity may help maintain balance through the lifespan. The purpose of this study was to determine whether college-aged recreational dancers had better balance than student athletes or sedentary individuals. We tested 24 females age 18-22 years belonging to one of three groups: recreational dancers, athletes, and sedentary individuals. Subjects performed a Y-balance and stork balance test on their right and left legs. Group scores were analyzed using analysis of variance. There were no differences in stork right leg ($P = 0.27$), left leg ($P = 0.64$), Y-balance right leg ($P = 0.17$), or left leg ($P = 0.49$). The similarities between college-aged recreational dancers and athletes or sedentary individuals, may be due to their young ages. Future research should investigate these variables in older-aged adults.

17
Title: Ghrelin Secretion Under Stress and Its Role in Obesity
Presenter(s): Nischal Shrestha
Advisor: Dr. Betsy Desy, Biology
Abstract: Stress-induced obesity is a common disease that leads to other conditions such as strokes, diabetes and cancers. The two articles I evaluated studied the effect of stress on ghrelin level and its effect on adiposity in rats. The first study examined the effect of stress on ghrelin. The rats were subjected to water avoidance to induce stress and venous blood samples were collected. Stress induced a 40%-85% increase in ghrelin level (Kristenssson *et al.*, 2006). Second study hypothesized the induction of adiposity with increase in ghrelin level. Ghrelin was administered subcutaneously for two weeks and body composition was analyzed by dual energy X-ray absorptiometry. The study found that increased ghrelin level in rats increased respiratory quotient leading to decreased fat utilization that is consistent with increased fat mass (Tschop *et al.*, 2000). These studies suggest that increased level of stress increases chances of obesity through ghrelin manipulation and fat utilization.

18
Title: Restaurant Point of Sales System
Presenter(s): Anup Shaky & Unisha Dhakhwa
Advisor: Drs. Daniel Kaiser, Shushang Man & Kourosh Mortezapour, Computer Science
Abstract: This presentation is about Restaurant Point of Sales (POS) program which basically helps a restaurant to operate all the functions they need to boost their sales and increase the pace of service to the customers. It helps restaurant employee such as servers to enter orders accurately with precise description of service, processing payments and built a systematic procedure among the work places by providing printed or displaying the order to kitchen staff where they can work on their service more efficiency. Furthermore, from the managerial aspects, it helps to keep track of the food inventory, labor cost, daily sales and inventory without having to keep track of it manually. This program is being targeted for restaurants employees and restaurant owners and going to help work easier, accurate and successful.

19
Title: Course Scheduler
Presenter(s): Mark Vue & Pheng Yang
Advisor: Dr. Dan Kaiser, Computer Science
Abstract: The program that we developed is a GUI app for preparing semester course schedules. The

application facilitates the assignment of course, faculty, room and time and displays the schedule in a weekly grid. The application stores the data of the courses in a database. This database helps organize the data and helps check for uniqueness among the courses. When a conflict occurs among two courses the application will warn the user of such conflict and will help the user correct the conflict. Once a course is made and free of conflicts from already scheduled courses the course will be added to the weekly grid and database. From the weekly grid the courses can be viewed, edited or deleted as necessary.

20
Title: Antiangiogenic and Apoptotic Effects of Cannabidiol
Presenter(s): Walker Schaar
Advisor: Dr. Pam Sanders, Biology
Abstract: *Cannabis sativa* has been used for its medicinal properties in eastern medicine. The U.S. government outlawed *C. sativa* in 1937, arguing the plant has no medicinal value. Research finds *C. sativa* to have therapeutic effects on cancer cells though mechanisms of angiogenesis and apoptosis. This poster reviews two articles that illustrate the use of a phytocompound, Cannabidiol (CBD) found in *C. sativa*, as an alternative cancer treatment. Solinas *et al* (2012) performed an *in vivo* study with male mice and increasing concentrations of CBD to examine CBD's ability to inhibit angiogenesis, resulting in significant inhibition of an angiogenic response. Maor *et al* (2012) investigated healthy and Kaposi Sarcoma Herpesvirus infected endothelial cells and compared their responses to increasing concentrations of CBD. At certain concentrations CBD caused infected cells to die and left uninfected cells unharmed. Further studies are needed to demonstrate definitive mechanisms at which CBD operates on cancerous cells.

21
Title: Post-Exercise Ankle Brachial Index in Spinal Cord Injured/ Affected Individuals
Presenter(s): Dylan Doyle, Ashley Timm, Evyn Hubbard & Joshua Watterson
Advisor: Dr. Jeff Bell, Exercise Science
Abstract: The post-exercise ankle-brachial index (ABI) may better detect peripheral arterial disease than when performed at rest. We sought to determine in spinal cord injured/ affected individuals (SCI) compared to able-bodied individuals (AB) the ABI after dynamic upper-body exercise. This study tested 29 subjects including 13 SCI (3 cerebral palsy, 6 spina bifida, and 4 spinal cord injury). In AB compared to SCI, resting heart-rate was lower (63.3 ± 11.6 vs. 71.9 ± 10.6 bpm, $p < 0.05$), post-exercise heart-rate was similar (116.5 ± 24.4 vs. 130.8 ± 26.9 bpm, $p = 0.14$), pre-exercise ABI was higher (1.054 ± 0.101 vs. 0.970 ± 0.107, $p < 0.05$), post-exercise ABI was higher (1.101 ± 0.130 vs. 0.955 ± 0.132, $p < 0.01$), and the change in ABI after exercise trended higher (0.047 ± 0.0953 vs. -0.015 ± 0.0952, $p = 0.09$). Differences may be related to autonomic function and further research is needed.

22
Title: A Topological Look Into Football
Presenter(s): Michael Paulson
Advisor: Dr. Carl Olimb, Mathematics
Abstract: Football is one of the great American pass times, and whether coaches are looking to increase their win percentages, or the fantasy football player wants to beat his friends, they all care about how best to improve their odds of success. In an attempt to dissect the game, we apply the use of Topological Data Analysis to a data set of players from the NFL in an attempt to discern new player types.

23
Title: From 5 Days to 4: Should Schools Make the Switch?
Presenter(s): Cadie Meyer
Advisor: Dr. Will Thomas, LEP
Abstract: Many kids would be ecstatic about only having to go to school four days a week, but educators are skeptical about this transition. Should schools make the switch from a five-day week to just four days? Research was conducted in the topics of the laws surrounding the amount of instructional time, cost benefit, and educational pros and cons; it has been concluded that the switch from four days to five is beneficial, but only in rural areas.

24
Title: The Quality of Light and its Effects on Kidney Bean Growth
Presenter(s): Elizabeth Senkyr & Luke Stadther
Advisor: Dr. Pam Sanders, Biology
Abstract: Light quality varies by wavelength and intensity; these effect the development of plants. Quality of light can be used to control plant growth over time to maximize profit. We hypothesize blue light will promote the most growth over the control, red, and green light groups. 24 kidney beans (*Phaseolus vulgaris*) were grown under clear, red, blue, and green plastic. Height was measured twice a week, over a 4 week period, and dry mass at harvest. Red, blue, and green light treated beans were 57%, 44%, and 42% of the control group height and were only 52%-60% of the control's dry weight. Our hypothesis was disproven; as the blue

light treated plants rate of growth was 52% lower than the control. The thick cloth and plastic reduced air flow which may have affected results.

25
Title: Single Leg Power and Change of Direction Speed
Presenter(s): Daniel John Hansen
Advisor: Dr. Jeff Bell, Exercise Science
Abstract: The purpose of this study was to determine the relationship between leg power and the speed of a 90° change in direction (CIDS). A number of sports require the ability to rapidly change direction while running. Ten male college athletes weighing 82.7±3.42 kg participated. CIDS was measured by a video recording of movement along with timing sequence using off-line movement analysis software (Dartfish). Single-leg power in both legs, as well as double-leg power was measured using a vertical jump mat (JustJump). Analysis revealed no significant correlation between single-leg power and CIDS to the same direction on the right (r=0.203, p=.57) or left (r=-.495, p=.15) or opposite side for the right (r=-.399, p=25) or left (r =.035, p=.92) direction. Similarly, double-leg power was not correlated with CIDS to the right (r=.093, p=.80) or left (r=-.579, p=0.08). These results indicate CIDS may be related to factors other than single- or double-leg power.

26
Title: Web-based 3D CAD Program
Presenter(s): Dale Schluter
Advisor: Dr. Dan Kaiser, Computer Science
Abstract: CAD stands for computer-aided design so, put simply, this program allows anyone with access to the internet the ability to construct 3D scenes out of objects that they themselves fabricate. The defining feature for this program is that it seamlessly combines both 2D and 3D perspectives without being overly complicated. For example, the user goes into a blueprinting phase whenever a new object is created. By design, the program is also capable of running on most major smartphones, tablets, and computers. Unlike most of its competition, a project started on one device can effortlessly get transferred to another device with absolutely no loss in feature set or build quality.

27
Title: Effects of a Season on the Physical Fitness of Division II Women Soccer Players at Southwest Minnesota State University
Presenter(s): Autumn C. Hayes
Advisor: Dr. Jeff Bell, Exercise Science
Abstract: The purpose of this study was to evaluate cardio-respiratory fitness of soccer players from pre-season to post-season. Twenty-one Southwest Minnesota State University female soccer players age 19.23 ± 1.45 years performed 3 fitness assessments consisting of 1 timed and 2 pass-fail tests. Only forwards, center midfielders and defenders were recruited; goalies did not participate in the study. In the Mile Repeat Test there was a significant difference between both mile times (6.81 ± 0.475 vs. 6.691 ± 0.380 minutes, $p = 0.04$ and 7.14 ± 0.658 vs. 6.87 ± 0.657 minutes, $p < 0.01$). The remaining tests had a significantly better passing rate. Specifically, the 120 test had a 29% improvement in passing rate ($p = 0.01$) and the Mustang test passing rate increased by 33% ($p < 0.01$). Cardio-respiratory fitness from pre-season to post-season improved significantly in the female soccer players.

28
Title: The Allelopathic Effect of Orange, Lemon and Banana Extract on Dry Biomass, Height and Overall Vigor of Rodeo Oats
Presenter(s): Rebecca Sommer & Samantha Ritter
Advisor: Dr. Pam Sanders, Biology
Abstract: Allelopathy is the release of chemicals by a plant, negatively affecting another's growth. Fruits with possible allelopathic properties accumulate large wastes when harvested commercially. We hypothesized that the allelopathic effect of orange extract will be greater than lemon extract, which will be greater than banana extract on inhibiting dry biomass, height, and overall vigor of oats. Oats (*Avena sativa* 'Rodeo') were separated into groups and treated with 20 g/L extracts of orange (*Citrus sinensis*), lemon, (*Citrus limon*), or banana (*Musa acuminate*) on an as needed basis for watering; control was water. Overall vigor was rated biweekly, plant height weekly, and dry biomass was measured at culmination of the experiment. Plant height showed significant differences at the completion of the treatment. No significant differences were found in vigor or dry biomass at the conclusion of treatment. Although the hypothesis was not supported, more research needs to be done for definitive results.

29
Title: Literature Review for a Case Study of a Knee Injury
Presenter(s): Alison Nagel
Advisor: Dr. Jeff Bell, Exercise Science
Abstract: Knee injuries are one of the most common injuries in sports. The heightened competition present today has increased the risk of

knee injuries. Two of the more common knee injuries include the anterior cruciate ligament (ACL) tear and a meniscal tear. Surgical techniques have improved substantially for both of these injuries. For instance, ACL surgery has three different options for a surgeon to choose from: bone-patellar tendon-bone autograft, the hamstring autograft, or the allograft. Each of these has their advantages and disadvantages. In addition, the literature suggests that the sooner after incurring an injury that the athlete receives surgery, the quicker the athlete can return to play. Along with surgery, the athlete should begin rehabilitation protocols that achieve specific goals. These goals are: protecting the reconstructed knee, reducing inflammation and pain, restoring the natural range of motion, improving strength, and returning to activity training.

30
Title: Ticket to Ride
Presenter(s): Jamison Starr
Advisor: Dr. Dan Kaiser, Computer Science
Abstract: Not enough people are playing board games. This is a program designed to help those people with an easy, introductory board game that can be played with 2 to 5 people on any computer. By playing numerous types of board games, Ticket to Ride was identified as one of the simpler games that takes more thought than most traditional family board games.

31
Title: Y-Balance Test, 50 Years+
Presenter(s): Samantha Neyens
Advisor: Dr. Jeff Bell & Kris Cleveland, Exercise Science
Abstract: The Y-balance is a recently devised balance test and currently, there are no data regarding the performance of middle-aged and elderly individuals in rural southwest Minnesota compared to national normative databases. This study will describe the balance ability of these samples compared to a general population. Two men and three women between the ages of 50 and 75 years old performed balance testing using a Y-balance test. The subjects performed 3-tests per leg on both legs after completing up to 6 practice trials in each balance movement. These tests include anterior, posterior-lateral, and posterior-medial balance components. Analysis utilizing Move to Perform software determined that 20% of the population had a balance slight deficit and 80% had a moderate deficit. These results indicated that 4 out of 5 subjects tested have balance deficits that increase injury risk by 3-6 fold.

32
Title: Allelopathic Effects of Common Foxtail Extract on Early Growth of Field Corn
Presenter(s): Emilee Gutzmer & Claire Sames
Advisor: Dr. Pam Sanders, Biology
Abstract: Allelopathy is the interaction of plants' biomolecules on the growth and development of surrounding plants and microorganisms. Grasses are known to have allelopathic effects. This experiment tested whether increased concentrations of common foxtail *(Setaria viridis)* extract caused greater inhibitions in the shoot height, shoot dry weight, and seed germination of field corn (*Zea mays*). Twenty two-week-old corn seedlings were transplanted and treated in an optimum greenhouse environment. Plants were split into four groups and watered as needed with foxtail extract treatments: 0g/L, 5g/L, 10g/L, and 15g/L. In a second experiment, ten corn seeds were placed in Petri dishes with filter paper and treated with the same extracts. Shoot height was measured biweekly, germinated seeds daily, and shoot dry weight after three weeks. Highest concentration of extract inhibited shoot dry weight by 53% and shoot height 16%. Foxtail extracts had no significant effect on seed germination. Overall, our hypothesis was supported.

33
Title: The Effects of Ambient Air Temperature on Measurements of Explosive Power
Presenter(s): Charlie Kern, Abe Kos & Laura Schultz
Advisor: Dr. Jeff Bell, Exercise Science
Abstract: Anecdotal evidence suggests that ambient air temperature during American football may affect performance. Our research focuses on ambient air temperature in regards to explosive power in Division II skill-position football players. A heated (32° C) and cold (3° C) tent was used to control air temperature. Participants were seated for 20 minutes in the tent before testing. Subjects completed an explosive power test via vertical jump and incline medicine ball throw. The mean cold throw distance was 2.87 ± 0.37 meters and increased to 3.11 ± 0.48 meters during the hot test ($p < 0.05$). The mean cold jump height was 64.45 ± 7.47 cm and increased to 69.00 ± 1.16 cm in the heat ($p < 0.01$). These results confirmed our hypothesis that warmer air conditions provide a better environment for explosive power than cold air conditions.

34
Title: Functional Movement Screening of SMSU Division 2 Collegiate Athletes

Presenter(s): Emily Kubesh & Ashley Schumacher
Advisor: Dr. Jeff Bell, Exercise Science
Abstract: Functional Movement Screening (FMS) is a seven-part test used to assess risk for injury. Each movement pattern of the test is designed to test overall movement capability. These movement patterns include deep squat, hurdle step, inline lunge, shoulder mobility, active straight-leg raise, trunk stability pushup, and rotary stability. The seven tests are combined to provide an overall score. We tested 6 males and 6 female collegiate track athletes age 17 to 21 years. All testing was performed by a certified FMS tester. We used the Move2Perform software, developed in Evansville, IN to analyze the test scores of the team and individuals. All subjects scored below the national standards. Nine of the subjects scored in the moderate deficit range, two in the slight deficit range, and one in the substantial deficit range. Our findings show that the subjects have at least a moderate risk of injury.

35
Title: Dominion: From the Table Top to the Computer Screen
Presenter(s): Michael Paulson & Travis VanOverbeke
Advisor: Dr. Dan Kaiser, Computer Science
Abstract: For the board game geek, it is often difficult to find players who want to sit down and play board games as often as you do. We have solved this problem by creating a clone of the game of Dominion on the computer using the Java platform.

36
Title: Analysis of Hot Sauce Intensity by HPLC
Presenter(s): John Craig
Advisor: Dr. Noelle Beyer, Chemistry
Abstract:8-Methyl-*N*-vanillyl-6-nonenamide, common name 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. This test is highly subjective, and thus is being phased out in favor of high performance liquid chromatographic analysis. The purpose of this research was to design a procedure for using HPLC to compare capsaicin concentrations across multiple store brand hot sauces in a student laboratory setting. Using a Waters Corporation procedure as a baseline, an effective extraction technique to analyze the sauces with HPLC was created. Results indicate that this procedure should be effective for use in a biochemistry lab course. Future research is needed to refine extraction procedures and consolidate student results into a database for further analysis.

37
Title: Post-Exercise Ankle-Brachial Index Measurements in Upper Body vs Lower Body Ergometry
Presenter(s): Kelsey Stern & Jenna MacHolda
Advisor: Dr. Jeff Bell, Exercise Science
Abstract: This study sought to determine post-exercise Ankle-Brachial Index (ABI) to upper- and lower-body exercise. Healthy, college-aged subjects (5 female, 3 male) weighing 71.1$\pm$12.8 kg and 173.1$\pm$12.9 cm tall completed an upper-body test followed by a lower-body test 24 hours apart. Each test included10 minutes of cycling between 60-80 rpm. The upper-body test was performed at 0.5 Watts/kg body mass. Heart-rate was recorded just prior to finish. Lower-body cycling was performed at heart-rate similar to upper-body. An ABI was performed before and after each exercise bout and included measuring systolic blood pressure in the ankles and arms while supine using a bi-directional Doppler. Paired t-test compared pre/post-ABI and ABI-change between protocols. Pre-ABIs were not different (p = 0.66) but upper-body post-ABI vs. lower-body was higher (1.18±0.079 vs. 1.08±0.125, p=0.03). Analysis of ABI-change indicated a trend (p = 0.06) for increased ABI in upper-body (0.035±0.075) while lower-body decreased ABI (-0.077±0.108). Further research is needed to determine the mechanisms causing different ABI responses to upper- and lower-body exercise.

38
Title: The Allelopathic Effects of Coffee Bean Extract on the Sunflower Plants
Presenter(s): Michael Mattick, Dana Kells, Lauren Douglas & Nathan Meyers
Advisor: Dr. Pam Sanders, Biology
Abstract: Allelopathy is the process of one plant producing chemicals naturally which inhibits or enhances the growth of other plants. Our experiment tests whether higher concentration of coffee extract will decrease the height, leaf count, and biomass of sunflower (*Helianthus annuus*) plants. This could be useful in the destruction of unwanted plants as a natural herbicide. The six plants per group were watered with a 0, 1, 10, and 20 g/L concentration of coffee extract when needed. The heights showed no significant difference compared to the control. Extracts at 10 g/L and 20 g/L reduced leaf count by 3 or 4. The dry mass showed a significant reduction in the 20 g/L concentration compared to the control. The coffee extract reduced height, leaf count, and dry mass as the concentration increased.

39
Title: Optimizing a New Experiment for Organic Chemistry Lab
Presenter(s): Rachel Patnoe
Advisor: Drs. Noelle Beyer & Robert Eliason, Chemistry
Abstract: The nitration of benzylpyridine presents a model illustration of the stepwise addition of nitro groups to an aromatic system. This experiment is ideal for organic chemistry laboratory because there are several possibilities for product based on changes in conditions and substituent effects studied in lecture. Students can predict possible product outcomes and then analyze the results using NMR spectroscopy. In addition, the dinitrated product has photochromic properties, making it an interesting compound. The purpose of this research was to optimize the dinitration of benzylpyridine under hot conditions for use in an organic chemistry laboratory. Isolation and purification of product provided many challenges in the areas of extraction, filtration, and purification. Experimentation with mixed solvent systems in varying hot and cold conditions was a major focus for our research. It is important to continually optimize experimental procedures in order to fit the time constraints of an organic chemistry laboratory.

40
Title: GeoTest Application
Presenter(s): Herman Houedan & Shahanshila Shakya
Advisor: Drs. Daniel Kaiser, Shushang Man & Kourosh Mortezapour, Computer Science
Abstract: "GeoTest Application" is a game for both kids and adults to test general knowledge about geography. This game helps you know the countries, capitals and flags in the world. It is basically played by first selecting the continent and then guessing the capital of a given country or the country to which a specific flag belongs to. The user can then select the number of questions he/she wants to play on, 5, 10 or 15 and will have ten seconds to guess the answer. The user will get one point for each correct answer and the score will be displayed at the end of the game. GeoTest Application, besides being a game, helps you gained some basic knowledge about the different countries in the world. You have fun and learn at the same time.

41
Title: The Effects of Caffeine on Reaction Time and Concentration
Presenter(s): Katelyn Sullivan, Catherine Otto & Tyler Tonderum
Advisor: Dr. Jeff Bell and Brent Jeffers, Exercise Science
Abstract: This study was performed to investigate reaction-time (RT) and concentration (C) after ingestion of 242mg of caffeine. Nine college-age subjects performed a pre and post assessment Stroop Test and RT test. RT and C tasks were completed before consumption and 120 minutes after consumption of a caffeinated beverage. The RT test consisted of reacting to a light stimulus while performing a three point stance track start. The C test used alternate versions of the Stroop Test for the two assessments. No significant differences in RT were detected between the pre and post assessments (0.248 ±.041 vs. 0.225 ±.027, $p = 0.21$). There was a significant difference in C after caffeine ingestion compared to the pre-test (8.93 ± 1.06 vs. 7.70 ± 1.04, $p < 0.03$). In conclusion, caffeine ingestion may not influence RT but may influence C in healthy college-aged students who may be regular consumers of caffeine.

42
Title: The Allelopathic Effects of Sunflower Extract on Peas
Presenter(s): Whitney Miller, Terrance Maier & Travis Larson
Advisor: Dr. Pam Sanders, Biology
Abstract: Allelopathy is the inhibitory or stimulatory effects of a plant on other plants through releasing chemical compounds into the environment. One known allelopathic plant is sunflower leaves. We predicted that sunflower fruit (*Helianthus annuus)* extract would inhibit shoot height and dry weight of peas (*Pisum sativum*). Pea plants were divided into four groups of six. Plants were watered with sunflower fruit extracts of 0, 10, 20, and 30 g/L. Shoot height was measured biweekly and dry weight measured at harvest. Results showed no significant difference in dry weight between groups. Shoot height between the control group and high concentration group was statistically significant. Dry weight is the better indication of inhibition, so our hypothesis was disproved, and sunflower fruit does not inhibit pea growth. This could be because sunflower fruit contains different chemicals than leaves.

43
Title: Effects of Music on Muscular Endurance
Presenter(s): Michael Wenk, Cole Oswald & Eric Giddings
Advisor: Dr. Jeff Bell, Exercise Science
Abstract: Many athletes believe that working out while listening to music is beneficial. Anecdotal evidence suggests this may be correct when lifting

weights. To test this hypothesis, 10 athletes performed a muscular endurance test on the bench press. Subjects performed two tests spaced 48 hours apart. One test was without music and the second test was performed with self-selected music playing through an iPod with ear buds. All subjects completed the same warm-up before performing a set at 85% of their body weight performed until fatigue. When the subject listened to music they performed 14.3 ± 5.8 repetitions compared to 12.4 ± 5.8 repetitions without music ($p < 0.001$). Self-selected music showed a positive influence on the subject's performance of muscular endurance during a bench-press test. Further investigation is needed to determine the effect of music on other muscular variables.

44
Title: Unity Shoot
Presenter(s): Avish Kansakar
Advisor: Drs. Dan Kaiser, Kouroush Mortezapour, Shushuang Man, Computer Science
Abstract: My capstone project is a first-person multiplayer shooter game. I am making this game using a game engine called Unity3d with C# scripting. I have always loved video games and wanted to make one. Unity3d game engine has made this task which I thought was daunting relatively easier. All my study on how to make a game and how to use this game engine was done online during the summer of 2013. The game doesn't address any problem, it is only a project that I have wanted to work on for a while and so I got it approved as my Capstone project. While doing this project, I have learned that designing a game from a ground up requires a lot of time and planning. I hope this game helps be become a better game designer in the future as I is the field I would like to work in.

45
Title: The Effects of Foot Placement on Force Production
Presenter(s): Rachel Westby, Christa Wolf & Margaret Lindow
Advisor: Dr. Jeff Bell, Exercise Science
Abstract: In the game of volleyball, there is controversy over optimal ready positions. This study investigated the optimal volleyball stance related force production of the first step toward the ball. In this study, we tested three different foot-placement stances including toes pointed medially, toes pointed laterally, and toes neutral. We hypothesized the optimal ready position would be with toes pointing medially. Average force development for medially pointed (375 ± 50.0 Newtons), laterally pointed (376 ± 49.5 Newtons), and neutral (376 ± 48.9 Newtons) foot placement were not significantly different ($p= 0.997$). Our study determined that there is not an optimal position of readiness for force development, and therefore it is possible there is no preferred stance to improve the time to reach a position on the court.

46
Title: Computational Investigation of the Mechanism of Thermochromism in N-Salicylideneaniline
Presenter(s): Ross Kuchta
Advisor: Dr. John Hansen, Chemistry
Abstract: N-salicylideneaniline is the base structure for a family of thermo- and photochromic compounds. The standard explanation for the mechanism for these phenomena involves a keto-enol tautomerism between high and low energy forms. Our aim was to determine what contribution, if any, to the thermo- and photochromic behavior of these compounds was due to ring twist between the salicylidene and aniline rings of the structure. We applied computational methods to this problem to determine that ring twist appears to play a significant role in the behavior of these compounds.

Poster Session B –
Ag Business, Political Science, Psychology, Sociology and Theatre

47
Title: Flashback to the '50s & '60s
Presenter(s): Payton Shively
Advisor: Sheila Tabaka, Theatre
Abstract: I am doing my undergraduate research on the 50s and 60s. You should care about this because we always want to remember how women looked back then. It is timeless, classic and beautiful. I accomplished this by looking at some books in the library and finding one that fit what I needed perfectly. I then went about deciding what look I wanted to do exactly on my models. I then decided which look would be better for each model and then I put the makeup I chose for them on them. I learned that a person with more prominent bone structure is more suited for a 60s look and a person with less prominent bone structure should go for a 50s look. In conclusion, the 50s and 60s were a beautiful time for makeup.

48
Title: "Look of the Lion"
Presenter(s): Ryan Risa
Advisor: Sheila Tabaka, Theatre

Abstract: Have you ever wondered what it takes to look like a lion? This presentation will cover the many elements one goes through in order to become the "King of the Jungle." To help with my study, I mainly looked at pictures and watched tutorials. This presentation will focus on the process, materials (or the kind of makeup that is needed), and the application of it. Looking at this poster will, hopefully, help people decide if this process will be easy enough to do on their own or on others. Lions are my favorite animal, and after the presentation, hopefully, others will appreciate them as well.

49
Title: Prosthetics: True to Life
Presenter(s): Anna Gwendolyn Eben
Advisor: Sheila Tabaka, Theatre
Abstract: Prosthetics can transform people from regular healthy people to people with gashes in their necks or throats. I will present how to do just that with latex and scar wax pieces. Also, I will help them become true to life. So I will have before and after pictures. Reusable prosthetics are most common applicable with latex but there one time use ones as well.

50
Title: Mermaids are Real: Stage Makeup Application
Presenter(s): Jessica Linder
Advisor: Sheila Tabaka, Theatre
Abstract: Mermaids have long been subject of many folklore and modern story-tellers. From old stories of sirens, sea monsters, and immortal beings, to the popular Disney animation *The Little Mermaid*, these sea-faring creatures have captured the interest of the human race. In this presentation, you will see the process of stage makeup application that exemplifies the artistic and imaginative aspects of the mystical mermaid. The facial region is the main and only focal point of the application technique that is demonstrated.

51
Title: Once On This Island: Make-Up Application for Creating the Gods
Presenter(s): Callie Frank
Advisor: Sheila Tabaka, Theatre
Abstract: How does someone create the look of a god or goddess using stage make-up? This presentation will show the many elements and designs used in creating the look for the gods and goddesses from musical Once on This Island. Research from past productions and earth elements were used to get a better understanding of what worked well and what did not look as great. Many interesting stage make-up techniques will be used to represent the goddess of love, goddess of the earth, god of water, and the god of death.

52
Title: The Healing Process: Application of Wounds
Presenter(s): Madeline Hentges
Advisor: Sheila Tabaka, Theatre
Abstract: My project is creating and applying different wounds to individuals using stage makeup. Being able to create different kinds of wounds is important and can also be crucial to portraying the passage of time. My project will focus on applying stage makeup to create the appearance of a fresh wound, a partially healed wound, a new scar, and an old scar. Each of these is done with stage makeup and can be used for a theatrical production.

53
Title: Throughout the Ages: Aging Stage Makeup
Presenter(s): Lynn Lafky
Advisor: Sheila Tabaka, Theatre
Abstract: This project illustrates how to apply both child-like and old-age makeup for a theatrical performance. This will make an actor look either younger or older from stage. We will explore the different colors and shapes applied to the face and what will make the actor look young or old. I will be applying makeup on a college student just over 20 years old.

54
Title: Video Character Make-up for Cosplay
Presenter(s): Alexander Pikala
Advisor: Sheila Tabaka, Theatre
Abstract: In the last decade video games have emerged as one the dominant mediums in the United States. Video games have influenced an entire generation of people. They have seeped into every part of our culture. In the U.S, 58% of all Americans play some sort of video game. This sphere of influence helps to create a following for many gamers. The rise of comic book conventions has increased the need for video game based costume play or cosplay. The act of dressing up like your favorite video game character and attending a convention takes a lot of work. The makeup used to become a video game character has to be researched extensively.

55
Title: Kabuki Makeup
Presenter(s): Danielle Grunewald
Advisor: Sheila Tabaka, Theatre
Abstract: Kabuki is a form of Japanese theatre found in 1600's that was once performed by women, but was soon banned because it was too erotic, so

men took over both roles of male and female in 1629. Male performers are still the dominate performers today. Most known for its unique use of makeup; white, black, and red are the only three colors used in Kabuki. Each of the three colors used have their own meanings and based on how the makeup is incorporated depends on what on who the performer is portraying.

56
Title: Make-up Styling of Rick Baker
Presenter(s): Kyle Havlicek
Advisor: Sheila Tabaka, Theatre
Abstract: Rick Baker is known as a special effects make-up artist. He has done many different kinds of creature make-up, and has won multiple awards for his art. Some of his most famous artistry include: “An American Werewolf in London”, “Men in Black”, and “How the Grinch Stole Christmas”. Rick Baker has won academy awards for all three of these movies and they were all for make-up. Another movie that he is known for doing the make-up for is “Planet of the Apes.” Since these are different kinds of films, Baker had to use different techniques for each concept.

57
Title: Disney on Stage: A Makeup Process
Presenter(s): Emily Woodrow
Advisor: Sheila Tabaka, Theatre
Abstract: This research project brings the creation of Disney characters to Stage through Stage makeup; a process of research and technique to re-create the original design of the characters from the movies. Shows and characters chosen are; Belle from Beauty and the Beast, Ariel from The Little Mermaid, and Jane from Tarzan. Here we will see the process of transforming my peers into these characters through the use of crème based makeup used for audiences sitting a distance of at least twenty to thirty feet away. Other applications that will be used, is the suggestion of the hair and costuming of each character.

58
Title: Tattoos in Theater
Presenter(s): Tony Falk
Advisor: Sheila Tabaka, Theatre
Abstract: How do actors, who have noticeable tattoos, cover them up when doing a stage production? This presentation will cover the different techniques one can use to cover tattoos that vary in shapes, sizes, and color.

59
Title: Makeup Allergens
Presenter(s): Turi Jystad
Advisor: Sheila Tabaka, Theatre
Abstract: Makeup allergens cause a major concern for actors. By researching different allergens that could affect people, actors can choose between varieties of makeup made of different ingredients. Readers need to understand different allergies that people may have, such as allergies to lanolin or beeswax. This study was performed using personal experience and research, along with research within the library. I am currently in Stage Make-Up, where I have discovered that I am allergic to the makeup they were using. While researching alternative makeups, I have found different types of makeup that can be used in replacement of cream makeup, the makeup I am allergic to. These findings will be able to help others who may be allergic to certain ingredients found in makeup.

60
Title: Defining Faces for All Spaces
Presenter(s): Jessa Roberts
Advisor: Sheila Tabaka, Theatre
Abstract: This poster examines the differences between Crème and Cake makeup. In theatre, the size of the space you are working in effects the designer’s choices. In a large theatre, crème makeup helps to make more of the actor’s features stand out. If a show is in a smaller house where the audience is closer, cake makeup is the better choice. 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.

61
Title: Ursula the Sea Witch
Presenter(s): Chuche Lee
Advisor: Sheila Tabaka, Theatre
Abstract: Often portrayed as just a villain, Ursula, from Disney’s *The Little Mermaid,* is more than just a lavender-skinned eight-legged creature. With the magic of Disney on Broadway, Ursula becomes a beautiful and lovable character while still being an evil half human and half beast, voice stealing, monster. Reproducing Ursula’s image from Disney’s animated *The Little Mermaid* into a Broadway musical proved to be difficult. It’s more than just

applying on purple makeup and wearing a white wig. It involves processes such as the narrowing the nose and highlighting the chin. This extensive process utilizes a model's natural facial features rather than hiding it all behind a purple makeup.

62
Title: Contouring the Face Using an Airbrush
Presenter(s): Rebecca Scott
Advisor: Sheila Tabaka, Theatre
Abstract: Have you ever wondered how to use an airbrush? Well now is your chance to learn. Using methods learned while working on *Shrek the Musical* and in Stage Make-Up I, these step by step instructions will walk you through the basics of air brushing along with teach you how to contour a face. Thanks to airbrushing, you can have a stage ready make-up in record time.

63
Title: From Drab To Fab: A Drag Queen Process
Presenter(s): Briana Helmer
Advisor: Sheila Tabaka, Theatre
Abstract:

64
Title: Municipal Budgetmaking in Southwest Minnesota
Presenter(s): Zhenya Ward
Advisor: Dr. David Sturrock, Political Science
Abstract: The city budget is arguably the most important document produced by a municipality as it determines all revenues (taxes, fees, rates, etc.) and expenditures (recreation, public works, public safety, administration, etc.) which affect the public. The purpose of this research paper is to thoroughly describe the budget process a city goes through (internal and external factors), compare these processes between a city under 2,500 population (Canby, MN) and a larger regional center of 14,000 population (Marshall, MN) to document differences and similarities, and compare challenges faced by these cities from the viewpoints of the elected officials who adopt the budgets. The final product will be a comprehensive look into the formation of the city budget.

65
Title: The Overpass Initiative: Highway 169 in Jordan, Minnesota
Presenter(s): Brandon Soller
Advisor: Dr. David Sturrock, Political Science
Abstract: In 1999 the Minnesota Department of Transportation (MnDOT) adopted the Interregional Corridor system (IRC) to support statewide economic activity by ensuring safe, timely, and efficient transportation between regional trade centers. A primary method that has been used on IRC highways is to replace high-traffic stoplights with overpasses. This project examines the effects that new overpasses can have on small, and possibly highway dependent, communities that they are designed to serve, in particular the city of Jordan, Minnesota (population 5,500) where a multi-million dollar overpass is being planned. This study evaluates the positive and negative effects of overpasses, information provided by MnDOT and other sources, and the opinions of Jordan's community leaders in hopes of determining the costs and benefits of such overpasses for their host communities.

66
Title: Impact of the Mayo Clinic's Destination Medical Center on Southeast Minnesota
Presenter(s): Jon Kindschi
Advisor: Dr. David Sturrock, Political Science
Abstract: Minnesota's world famous Mayo Clinic is planning a massive, multi-year expansion called the Destination Medical Center. This project will include construction and redevelopment at its home campus in Rochester and also such partnership projects with the University of Minnesota Medical School and the Hormel Research Institute in Austin. The DMC is also expected to create more widespread benefits, especially through the creation of new jobs, notably in the areas of construction, medical services, and support industries. Since the Mayo Clinic has asked the State of Minnesota to issue multi-year bonds to help fund this project, this study will undertake a cost-benefit analysis to determine to what degree the expected benefits of the DMC project will be shared by communities across the state.

67
Title: The Minnesota Farm Machinery Repair Sales Tax: Costs and Benefits
Presenter(s): Steven Halloran
Advisor: Dr. David Sturrock, Political Science
Abstract: One of the many new taxes which were introduced as a result of the Minnesota Legislature's 2012-1013 session was a 7% sales tax on the repair of commercial, electronic, and telecommunications equipment, including farm equipment. This tax is expected to generate $29 million dollars for the State of Minnesota over two years, but at what cost? Using interviews with farmers, legislatures, and other government officials, as well examining the financial impact this tax will have on the state and the agricultural community, this project hopes to present a clear and concise analysis of the Minnesota Farm

Machinery Repair Sales Tax, and what it affects in the future.

68
Title: Impact of the Minnesota Power Plan on Greater Minnesota
Presenter(s): Changkuoth Gatchay
Advisor: Dr. David Sturrock, Political Science
Abstract: The recent passage of the Minnesota Power Plan poses significant implications for Greater Minnesota. Energy conservation and the health of the environment are great goods; these goods should be sought and protected, for the benefit of the current population and posterity. Some benefits of this plan include, but are not limited to, the addition of 200 megawatts of wind energy and delivery of 250 megawatts of hydropower. This study investigates the state of energy production in Minnesota and policies which are designed to achieve greater energy efficiency and reduced environmental impact. The process by which I worked to uncover the ends of my research entailed looking at the policies that pertained, analyzing the current discussion, and observing the long-term goals of the designers of this plan. My most significant findings included wind energy and hydropower; their additions entertain high standards of environmental health and economic flourishing.

69
Title: Speed Limit Increases on U.S. Highways 59 and 75
Presenter(s): Joe Stremcha
Advisor: Dr. David Sturrock, Political Science
Abstract: This fall the Minnesota Department of Transportation raised speed limits from 55 to 60 miles per hour on 730 miles of two-lane highways in Western Minnesota. The roads affected are U.S. 59, U.S. 75 and Minnesota Trunk Highway 7. These changes occurred after careful evaluation of accident data, road design and average traffic speed, and consultations with leaders of communities served by these roads, regional engineers, and other state officials. Setting speed limits is a complex process, involving a number of factors which sometimes conflict with each other -- existing road design, geographic features, total accident reduction, serious accident reduction, driver habits, and maintenance of traffic flow. This paper draws from MnDOT information, news accounts and interviews as it seeks to explain why these roads were selected, what tradeoffs were involved, and the timing of these changes.

70
Title: Testing Melvin Kohn's Theory Using Data from the General Social Survey
Presenter(s): Eddie Anderson & Kyle Johnson
Advisor: Dr. Kerry Livingston, Sociology
Abstract: This study examines Melvin Kohn's theory, which links a person's social class and what they believe children should learn. Using data from the General Social Survey, the relationship between social class and socialization attributes are analyzed. The socialization attributes include: to obey, to be well liked and popular, to think for himself/ herself, to work hard and to help others when they need help. When looking at the relationships between obeying and thinking for oneself, Kohn's theory is supported.

71
Title: Using General Social Survey Data to Test Hirschi's Control Theory
Presenter(s): Abbie Meyer & Vonnie Hammerschmidt
Advisor: Dr. Kerry Livingston, Sociology
Abstract: The objective of this class research project is to test Travis Hirschi's Control Theory, which states that there is a link between social relationships and deviant behavior. The research looks at whether there is a relationship between an individual's history of being picked up or arrested and having fewer ties to family and low-church attendance. The study's independent variables are levels of family satisfaction and church attendance, while the dependent variable is the number of police pick-ups or arrests. The method for evaluating the relationship between these variables is through the secondary analysis of available data using datasets from the General Social Survey. The findings support Hirschi's Control Theory that weak social bonds are associated with deviant behavior.

72
Title: The Explanatory Power of Durkheim's Theory of Suicide: A Review of Contemporary Research
Presenter(s): Megan Gullickson
Advisor: Dr. Kerry Livingston, Sociology
Abstract:Understanding the factors linked to suicide is vital in the prevention of suicide itself. Emile Durkheim first examined the social causes of suicide in 1897. He concluded that excess integration (altruistic suicide) and regulation (fatalistic suicide), as well as weak integration (egoistic suicide) and regulation (anomic suicide) were linked to suicide rates. To better understand how researchers are using Durkheim's ideas today, a review of recent studies using his theory was conducted. A sample of twenty studies was reviewed. The summary of each

study includes information about: 1) the type of suicide analyzed, 2) the study's unit of analysis, 3) how suicide was operationalized, and 4) whether or not the findings supported Durkheim's theory. Eighteen studies supported Durkheim's theory. Egoistic and anomic suicides were studied most often. Although new evidence continues to support some of Durkheim's work, this review suggests a need for further research on altruistic and fatalistic suicide.

73
Title: Exploring African-American Spirituals Through the Lenses of the Three Major Sociological Perspectives
Presenter(s): Erin Reps
Advisor: Dr. Kerry Livingston, Sociology
Abstract: 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).

74
Title: Economic Development in the Dominican Republic
Presenter(s): Desirae Guscette & Emily Remmers
Advisor: Dr. Sang Jung, Ag Business
Abstract: The Dominican Republic is a middle-income developing country that has been one of the fastest growing economies in the region. This is primarily dependent on agriculture, trade, services, and especially tourism. This is important because trending upward from the 2010-2012 recession, it exemplifies that it's not "impossible" to develop, it just takes patience. The Dominican Republic was a great choice because I was unacquainted with its economic encounters, and elected to further research the countries' economy. As well as to mature an improved understanding of how this country has been making progress in terms of their plan to advance from an underdeveloped country. The most significant discovery that caught my attention was how "the poorest half of the population receives less than one-fifth of GDP (Gross Domestic Product), while the richest 10% enjoys nearly 40% of GDP" Through tribulations, the Dominican Republic is still progressing towards narrowing the countries deficit.

75
Title: Where's Waldo: Comparing Different Target Stimuli Using Conjunctive Search
Presenter(s): Mark Jankowski
Advisor: Dr. Scott Peterson, Psychology
Abstract: Conjunctive search involves combining multiple characteristics into one object. This experiment tested what features allow target objects to blend in or stand out. Participants in the experiment were twelve SMSU students, most recruited from a general psychology class. Each participant completed three computer tests, in which they were asked to find a target object amidst distractors. In each trial, the target was either present or absent from the scene. Test one was a shape search, where the target was one specific shape. The second and third tests were conjunctive searches, in which the targets contained one or two characteristics within a specific shape. It was predicted that as the targets increase in characteristics, the reaction time and accuracy of identifying the target will suffer.

76
Title: The Effect of Divorces on Child Development
Presenter(s): Björn Walter
Advisor: Dr. Scott Peterson, Psychology
Abstract: It has been estimated that between forty to fifty percent of all first marriages end with a divorce, and that sixty percent of all second marriages end in the same way. Many researchers have found that these life events affect children negatively and that their social skills are worse than children from nuclear families. However, recent studies have shown this may not have to do with the fact that the child experienced a divorce. The purpose of this study is to show that there are other factors that effect a child during a divorce. Through researching and studying the correlation between different factors and a child's behavior after a divorce, it has become apparent that some of these behaviors maybe due to the child's relationship with other family members (especially the father), both prior to and after the divorce.

Poster Session C – Computer Science, Creative Writing, History and Psychology

77
Title: The Effect of Listening Time on Perception of Music
Presenter(s): Carol Baune
Advisor: Dr. Scott Peterson, Psychology
Abstract: The study of music perception has implications for music therapy, work, environmental perceptions, health, leisure, and for people who are experiencing a terminal illness. Many research studies have investigated the effects of music on our experience of time. This study was conducted to investigate the opposite: does the length of time effect our perception of music? A short survey was filled out by SMSU students on their perception of music and their mood after waiting either two or five minutes. The prediction was that the five minute group would be more positive and calm, and they would perceive the music as more pleasant because they were allowed time to really listen to the music and relax. Findings did not support this hypothesis. Those who waited for a longer time were more bored and tended to perceive the music as less pleasant.

78
Title: Color Deficiencies and the Influence of Age, Gender and Smoking
Presenter(s): Shannon Marholtz & Kristina Trembly
Advisor: Dr. Scott Peterson, Psychology
Abstract: Color is very an important factor in how humans see the world. The optic nerve is very sensitive to environmental toxins and harsh components. These factors along with age and gender have been shown to be predictive factors for how much color deficiency a person suffers from. We had participants complete a color discrimination task that had them line up the color blocks from one fixed hue to another. While most people suffer from minor color deficiencies: the older a person is, whether they are male or female, and whether they smoke tobacco all influence the degree to which the individual will suffer from color deficiencies.

79
Title: The Role of Eyes and Eyebrows in Facial Recognition
Presenter(s): Cadie Meyer
Advisor: Dr. Scott Peterson, Psychology
Abstract: Facial Recognition is something we each use on a daily basis. This experiment looks into the effects that facial features have on our perception of facial recognition. It is hypothesized that the eyebrows are more important in facial recognition than the eyes. 20 famous individuals were selected for use in this experiment. Their images were edited twice: Once to eliminate the eyebrows, and a second time to eliminate the eyes. All editing was done using Adobe Photoshop CS6. This experimental research was conducted using the student body of Southwest Minnesota State University. 30 individuals were selected to participate in a brief pictorial based questionnaire. Results will be discussed.

80
Title: Taste Perception of Generic vs. Name Brand Sodas
Presenter(s): Kristi Eisenbraun, Kimberly Einck & Jina Stockland
Advisor: Dr. Scott Peterson, Psychology
Abstract: We conducted a sensation and perception taste test on whether or not there is a difference between name brand sodas and Wal-Mart generic sodas. Our hypothesis was that avid drinkers will be able to notice a difference in the taste between name brand and generic soda; also that people who drink one or two sodas a week would be less likely to tell the difference between generic and name brand sodas. In addition, we predicted that the younger generation would be more likely to tell the difference between the brands than the older generations since their taste buds are deteriorating with age. The taste test involved six different name brand sodas and the six matching generic brands. Results will be presented on the poster.

81
Title: How Does the American Diet Affect the Way Our Bodies Work?
Presenter(s): Daniel Nordlund & Daniel Sargent
Advisor: Dr. Scott Peterson, Psychology
Abstract: This study takes an in depth look at how unhealthy eating can affect us. The obesity problem in the United States has been a big concern and still is. The diet we choose to eat can lead to many different types of problems, including chronic diseases, food addiction and others. These concerns can all lead to an increase in healthcare costs. We have not been successful in helping people sustain a balanced, healthy body weight. This study will take look at the diet history of the United States and how American's eat. The American diet has changed significantly, especially over the past 40 years. In looking at these changes,

we will examine both the pros and cons. In addition, we will outline a plan to help reduce America's obesity problem.

82
Title: The Effects of Auditory Stimuli on Taste
Presenter(s): Angela Euerle, Tracy Kellen and Bjorn Walter
Advisor: Dr. Scott Peterson, Psychology
Abstract: The purpose of our study was to test the general effect of background music on the perception of taste. When evaluating the quality of food experienced, consumers tend to rely on smell and texture. However, a growing body of research is finding that auditory stimuli also influence perceptions of taste. Participants were asked to drink a glass of juice while either listening to music or not, and then fill out a questionnaire. The songs were labeled as "heavy and powerful" or "zingy and refreshing". We predicted that participants' perceptions of the taste of the juice would be influenced by the type of music they experienced while drinking it.

83
Title: Health Halo Effects from Diet and Zero Calorie Sodas
Presenter(s): Joshua Hughes & Gena Stevens
Advisor: Dr. Scott Peterson, Psychology
Abstract: The "health halo" effect refers to people's tendency to overgeneralize nutrient content and health claims made about food products. For example, it has been shown that labeling a snack food as "low-fat" results in increased consumption of that food and lower calorie estimates. The goal of this study was to investigate whether similar health halo effects can be observed for beverages, in particular, diet and zero calorie sodas. After reading a brief story about a person consuming a particular beverage, participants were asked to rate the "healthiness" of the beverage and judge various hypothetical decisions made by the person. As compared to Regular Coke, Diet and Zero Calorie sodas were rated as healthier and more nutritious. Participants generally disagreed with the target person making decisions that were inconsistent with her health-related goal regardless of her beverage choice. Participants judged having a dessert or skipping a workout to be least acceptable.

84
Title: Effects of Binge Drinking on GPA
Presenter(s): Dillan Hutchins & Dan Francis Jr.
Advisor: Dr. Scott Peterson, Psychology
Abstract: Binge drinking is the practice of drinking excessive amounts of alcohol regularly. This is important to society because no one still really knows the affects that binge drinking has on the brain. This is a complex topic because binge drinking isn't the only factor that can affect GPA in college, although binge drinking can affect the neurons in the brain a negative way. Since the brain is still developing throughout the years of college binge drinking can damage the brain in ways that cannot be repaired. We predict that binge drinking could affect the GPA of college age students. To test our hypothesis we researched peer review articles about binge drinking and the effects on GPA. We also surveyed 50 random students on the campus of SMSU. Results will be shown in our poster presentation.

85
Title: Effects of Birth Order on Academic Achievement in Children
Presenter(s): Ashley Edwards & Kathleen Walker
Advisor: Dr. Scott Peterson, Psychology
Abstract: Birth order has been related to many different personality traits throughout Psychology and other sciences. However, is birth order a major factor in academic achievement? Many studies suggest that birth order has significant effects on academic achievement while other studies suggest that birth order plays no role. If birth order does influence academic achievement, then a correlation should be found between academic success and certain birth order roles. If no correlation is found for birth order and academic achievement, then other factors must contribute to academic success in children. Age gaps can alter these findings because of the nature of personality and psychology causing an alteration in typical birth order roles. Our findings suggest a strong correlation between first born and academic achievement.

86
Title: Taste Expectancy and Taste Perception: Does What We See Effect the Taste of Food?
Presenter(s): Danica Caudillo & Kayla Williams
Advisor: Drs. Scott Peterson and Corey Butler, Psychology
Abstract: Taste is a sense that we rely on every single day of our lives. We use it to decide on what we are going to eat for the day, we use it to satisfy a craving, and we use it to make others happy. Specifically, we pay for candy that could potentially be the same exact flavor for every piece but since we are told what the taste should be, that is what we perceive it to be. Candy comes in all kinds of shapes, sizes, colors, flavors, and textures. All of

these traits are perceived by our senses and we are able to distinguish which candy is which and what we can expect it to taste like. Research has shown that taste perception can be altered by our expectations and we may not actually be experiencing the truest form of the candy's flavor.

87
Title: Perception of Aggression in Color Among SMSU Students
Presenter(s): Ann Kopitzke
Advisor: Dr. Scott Peterson, Psychology
Abstract: This study was an exploration of how teams colors affect the perception of that teams aggression, and intimidation of opponents as well as if those would be factors in students choices for team colors. In this study five different color schemes were ranked on aggression, intimidation, and how much the subject liked the scheme. Then each subject was asked to pick the colors they would use for the theoretical lacrosse team that was part of the scenario. My hypothesis was that Red and Black would be deemed the most aggressive colors, and that major would be a factor in whether aggressive colors were chosen or not. The statistics were still being calculated at the time this was written

88
Title: The Effects of Music on Pain Perception
Presenter(s): Rebecca Holmblad & Catherine Barstow
Advisor: Dr. Scott Peterson, Psychology
Abstract: This experiment involves testing auditory control over pain tolerance. Our goal is to discover if participants can more easily handle pain with an auditory distraction. Both groups will place their left hand in a bucket of cold water first and see how long they can tolerate pain. The left hand will be removed and a short break will take place. Then the participants will place their right hand into the water and see how long they can tolerate the pain. The difference between the two groups is when the auditory distraction will occur— the first group will hear music while their left hand is submerged. The second group will hear music when their right hand is submerged. Our prediction is that the participants will be able to tolerate more pain when they are listening to music. The results will be presented on the poster.

89
Title: Between the Lines: the Womanly Construct of Ladies' Home Journal, 1950-1959
Presenter(s): Mariah J. Garver
Advisor: Dr. Joan Gittens, History
Abstract: In 1963, Betty Friedan electrified the country with the publication of *The Feminine Mystique.* Friedan, a former writer for the *Ladies' Home Journal* along with other women's magazines, was especially critical of the *Journal* for its presentation of women in a narrow domestic role, denigrating the pursuit of activity beyond home and hearth. This project examines print advertisements and articles in the *Ladies' Home Journal* (1950-1959) to identify what image of womanhood was constructed by this popular medium throughout the decade. While Friedan's assessment on the whole holds true, her generalizations overwhelm the more subtle views of womanhood, beyond the role of homemaker and housewife, presented by the *Journal*.

90
Title: The Women Homesteaders of Swift County, Minnesota
Presenter(s): Steven McGeary
Advisor: Dr. Joan Gittens, History
Abstract: 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.

91
Title: The Rwandan Genocide: Why the World Watched
Presenter(s): Michelle DeVries
Advisor: Dr. Joan Gittens, History
Abstract: The Rwandan Genocide lasted from April 1994 to mid-July 1994 and cost half a million Rwandans, mostly ethnic Tutsis, their lives. No nation sent active troops until the end of the Genocide, and the slaughter continued unchecked for ninety days. Coverage in the *New York Times*, *Newsweek* and *Time* makes clear that the citizens of the United States were well aware of the events in Rwanda. But the United States did not intervene in the genocide. President Clinton has said that failure to intervene in the Rwandan Genocide was the biggest mistake of his presidency, since early intervention could have saved thousands of lives. This paper looks at the coverage of the Rwandan Genocide in American newspapers and magazines, as well as President Clinton's memoir, and examines

why the American government and the American people failed to respond to this prolonged atrocity.

92
Title: Thomas More and Erasmus: Defenders of the Faith
Presenter(s): Ryn Bursack
Advisor: Dr. Joan Gittens, History
Abstract: In 1517, when Martin Luther revealed his *Ninety-Five Theses*, he began a movement that would change the religious landscape of the world. Two men, long-time friends, remained loyal to the Catholic Church despite their criticisms and when necessary defended it. Thomas More, an English lawyer who had at one time desired a religious life, only left to serve his king and his country. Desiderius Erasmus, was a man forced (in his own words) into priesthood by unloving guardians after his parents' death. These men, however critical of the Church they were previously, defended the Church from Luther and other Protestant voices. More and Erasmus stood against the Protestant Reformation until More was executed for refusing to acknowledge a Protestant king. Using the written works and correspondence of More and Erasmus, this project examines the lives of these two men to see why they defended the Church when others stepped aside.

93
Title: The Prague Spring and Soviet Intervention of 1968
Presenter(s): Kyle Pavek
Advisor: Dr. Joan Gittens, History
Abstract: The Prague Spring was a brief relaxation of the Soviet Union's direct control over Czechoslovakia from March 5th to August 21st 1968. This time period was marked by experimental changes in economics, politics, and culture. Why did these seemingly harmless changes incur the wrath of the Soviet military? The answer is rooted in Soviet fears of encroaching western influences. These fears were actually not unfounded. Drawing on primary documents from people such as Alexander Dubcek and Leonid Brezhnev, this project will attempt to shed light on why the Soviets were so threatened by this movement. These influences which were manifested in the Prague Spring would not be stopped, even with the might of all the tanks the Soviet army had to offer. The crushing of the Prague Spring would be the beginning of the end for the Soviet Empire.

94
Title: The Minnesota Civilian Conservation Corps and the Creation of Camden State Park, 1934
Presenter(s): Anna Biastock
Advisor: Dr. Joan Gittens, History
Abstract: The goal of this research is to describe the achievements of the Civilian Conservation Corps in the creation of Camden State Park. Citizens of Southwest Minnesota, through the Camden Park Association, had been working to create a state park since 1930. With the creation of FDR's Civilian Conservation Corps in 1933, the work force to begin their project was available. The CCC was one of the most popular programs of President Franklin Roosevelt's New Deal. The purpose of the CCC was to put young men back to work in response to the devastation of the Great Depression. The company at Camden consisted of veterans from World War I, part of the Veterans Conservation Corps, a sub-program of the CCC. The veterans worked at Camden from 1934 until the completion of the project in 1936. The documents for this study are local newspapers and the VCC superintendent's monthly reports from Camden.

95
Title: Body Growth and Development
Presenter(s): Daryl Thomas
Advisor: Dr. Scott Peterson, Psychology
Abstract: Body growth and change is important throughout life even as an infant. Haven't you ever wondered about how humans develop and the stages children go through all the way until they reach adulthood? The brain has a big role in body growth and change, as children get older not only do their bodies grow but so does their knowledge. By the age of 2years old 55% of the brain is developed and by 6 years of age the brain is fully developed. It has also been found that physical growth and development affects Psychological, Social, and Emotional Development: Just because of the rapid growth from infancy to early childhood. The research shows that the older you get the more your body slows, down but the more your psychological, social, and emotional development increases.

96
Title: Does stress cause aging? And what can we do about that?
Presenter(s): Leonard Panion
Advisor: Dr. Scott Peterson, Psychology
Abstract: We all have stress in our lives at times. Stress can be overwhelming at times. I always wanted to know what's the causes of stress, what's the symptoms of stress, what should someone do about stress and lastly does stress ages a person. I believe the importance of these four questions is that I don't feel that people are educated enough to know the answer to those four questions. I learned

that stress happens to be a state of mind or emotion thoughts that can have tension from demanding circumstances. I learned that stress symptoms lead up to bad health problems and raises chances of being sick. I also learned tips on how to deal with stress and also managing your stress. I feel that this information that I talked about is answer some part of my research question. I feel that the information a learned and gathered can really help some one who doesn't know the facts about stress.

97
Title: Wireless Infrastructure Evaluation for SMSU
Presenter(s): Sabin Sapkota & Kelly Schuerman
Advisor: Dr. Dan Kaiser, Computer Science
Abstract: Southwest Minnesota State University has improved its wireless network significantly but there still were many areas that needed attention. This survey explains the status and location of the Access Points (AP) around Campus and their signal strengths. Air Magnet survey is used for the survey whose actual heat-maps are compared side by side to the predictive heat maps generated by Cisco Prime Infrastructure Manager. This comparison shows the expected range with the actual range of the wireless strengths. Actual range was significantly lower because of the physical hindrances. After the survey, it is noticed that Students Center receives the highest volume of wireless users at a given time which could not be handled by the existing APs, so five new APs were installed which dramatically increased the connection capacity. With available resources and manpower, further progress will be made.

98
Title: Bad Romance and Good Conversations: An Exploration of the Primary Relationships in *Fifty Shades of Grey* and *Twilight*
Presenter(s): Samantha L. Lemmerman
Advisor: Marianne Zarzana, Creative Writing
Abstract: After reading two of the best-selling romance series of the 21st century, Samantha Lemmerman observed that the courtships were anti-feministic. She proposed that these depictions have had a negative impact on a generation of female teen readers. Through research, she proved that both book series portray teens with poor self-images in unhealthy relationships.

Abstracts

Original Art Works – Art Program

1
Title: Compartmentalization
Presenter: Gabrielle Cohrs
Advisor: Pat Hand, Art Program
Abstract: The motivation behind this piece was to showcase me. What makes me tick and how every interwoven part of my inner self is tied together yet sealed off into compartments allowing for certain sides to be accessed one at a time. I took a small cabinet box and transformed it into a segmented design. The top half displays shelves of my day-to-day relaxed persona that a normal person would see when they met me. This is displayed by the playfulness of the toys, the lace presenting my femininity, the bells symbolizing freedom and clarity, a small box with tiny compartments with hearts to show successful and unsuccessful love. If the viewer follows the lace through down past the top compartment they will see a darker scene below. Here there is a battle waging between a darkness, where faith, represented by a rosary, is called into question and what battle does to a person. The piece allows a person to question what they see at face value, which if they only stopped for a moment would see a pretty box, however when examining closer they can see a deeper subject matter.

2
Title: Country Time
Presenter: Rachel Frerich
Advisor: Pat Hand, Art Program
Abstract: For our box assemblage project, we were asked to use 3-D imagery to depict something we have an opinion on using found objects and handmade components, all placed in a wooden box of our choosing. We were also encouraged to alter some objects, including the box. Our assemblages were to be based on the style of Joseph Cornell. When looking for found objects, I was drawn to ones that reminded me of my Great-Grandparents and Grandparents, all of which grew up on a farm. Using the basic elements (line, color, texture, shape, space) and principles of art (movement, scale, balance, unity, emphasis), I created a depiction of country time that portrays how peaceful, vibrant, and natural country life can be.

3
Title: The Mechanic
Presenter: NaLee Lor
Advisor: Pat Hand, Art Program
Abstract:

4
Title: A Blank Slate
Presenter: Annie Erickson
Advisor: Pat Hand, Art Program
Abstract:

5
Title: Music is Life
Presenter: Trent Smith
Advisor: Pat Hand, Art Program
Abstract: *Music is Light* is a box assemblage based on the found object and mixed media box assemblages of artist Joseph Cornell. His works often highlighted various themes, such as hotels, science, the Medici family and other ideas. My piece is split by the strength of the pyramid. The eye represents the all-seeing eye we have in ourselves, and through this we will see light. On the left side is the darkness and negativity (wars, violence, imprisonment, hatred, etc.). The grass grows greener with light. Toward the right is light, and as we stand with confidence in who we are, the colors become bright and we realize that everything is connected. Through music, the soul may become more alive.

6
Title: War Untitled
Presenter: Emily Woodrow
Advisor: Pat Hand, Art Program
Abstract: The art work, *War Untitled,* is about the destruction of life during wars. War and peace are depicted with contrasting elements. For example, blood contrasting with perfume or guns contrasting with children's toys. Certain parts of the piece are handmade, such as the gas mask formed from clay. Other parts are found objects or constructed from found materials, such as the barricade made from screen and wire.The concept of the box assemblage was inspired by a study of Joseph Cornell's art works using this type of form. He worked with found objects and a variety of themes to create his art.

7
Title: Art Advocacy
Presenter: Jayme Wiertzema
Advisor: Pat Hand, Art Program
Abstract: The scenario given was to create a box assemblage inspired by the artist Joseph Cornell, with content of choice. Cornell created assemblages inside boxes using found objects with varying subject matter. I chose to research the importance of art in education because of my major in art education, and create my assemblage based on art advocacy. The base coat of the box was coated in chalkboard paint. This represented the school situation and allowed for a large amount of two-dimensional decoration in chalk. I used three-dimensional elements, including found objects and things I constructed myself. The objects I made were the wire halves of the brain that I constructed with various wires, to display the importance of utilizing both sides of the brain. My piece represents how the use, or non-use of art and the right side of the brain can affect a student's experience in school.

8
Title: A Time and Place
Presenter: Tara Borman
Advisor: Pat Hand, Art Program
Abstract: *A Time and Place* is from a sculpture class project based on the box assemblages of sculptor Joseph Cornell. The piece itself has a duality in meaning, as when I initially started, my concept was how the definition of manliness had changed. But as the pieces were being put together, the project seemed to morph into the sacrifice of growing up. The concepts don't stand alone, however. Not only has our idea of manliness changed, it affects how we grow up as well.

9
Title: Media Assault
Presenter: Laura Ahrendt
Advisor: Pat Hand, Art Program
Abstract: My sculpture, *Media Assault***,** represents the over saturation of violence in media. There is an unhealthy amount of this in American pop culture. The materials used are both handmade and found objects, including an electric plug and wire to show how everything is wired into today's media. The project was based on the box assemblage art of Joseph Cornell and some of the found object assemblages of Robert Rauschenburg.

For more information contact conference coordinator:
Dr. Emily Deaver (Emily.Deaver@SMSU.edu)
SMSU Science Department
1501 State Street, Marshall MN 56258

SOUTHWEST
MINNESOTA STATE UNIVERSITY

www.SMSU.edu · 1-800-642-0684