

7th Annual

Undergraduate Research Conference

12

at Southwest Minnesota State University

**Wednesday,
December 5**

Starting at 8:30 a.m.

in the SMSU Conference Center

ABSTRACT BOOKLET

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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, Associate 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 campus, fall 2007 the conference was expanded to include all disciplines across campus. The 2nd Annual SMSU Undergraduate Research Conference doubled the number of presenters with 13 different programs across campus participating. This year, in 2012 there are 19 different programs participating. 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

Welcome and Keynote

SMSU Conference Center Upper Ballroom

- 8:30.....Dr. Ronald Wood, SMSU President, Opening Remarks
 8:45.....Margaret J. Filardo, PhD, Keynote Address
 “The Story of the Columbia River: The real-time application of scientific data”

Platform Session A

SMSU Conference Center Upper Ballroom

- 9:45.....Wokil Bam, Environmental Science, Sodium Analysis in Redwood River Water in Southwest Minnesota
 10:00.....Brooke Burmeister, Environmental Science, Effects of Barley Extract on the Growth of Algae *Spirogyra*, *Synedra*, and *Ankistrodesmus*
 10:15.....Rachel Graupmann, Environmental Science, *Staphylococci* Occurrence and Resistance to Antibiotics on the Southwest Minnesota State University Campus
10:30.....BREAK
 10:45.....John R. Callaghan, Environmental Science, The Effectiveness of Worm and Minnow Bait for Catching Fish at Big Creek Lake
 11:00.....Tony Ross, Environmental Science, An Evaluation of the Ring-necked Pheasant (*Phasianus colchicus*) Population in Lyon County, Minnesota
 11:15.....Diana Moe, Environmental Science, Diversity of Invertebrates in a Prairie, Tree-covered and Mowed Lawn Area of the ADM-SMSU Environmental Learning Center
 11:30.....Hadiza Raji, ENVIS, Comparing the Metabolic Fingerprint of Bacterial Communities in Different Sites of the Redwood River in Marshall, MN
 11:45.....Stephanie Speer, Environmental Science, Historical Population Expansion and Land Use in Lyon County and Marshall, Minnesota
 12:00-1:00 Brittny Heimermann, Wes Huntington, Nick White, Creative Writing, Senior Readings, “Well, This is Weird”
 1:45.....Kevin Okello, Environmental Science, Characterization of Quaternary Glacial Lake Marshall
 2:00.....Brian Nordby, Environmental Science, Benthic Macroinvertebrates as an Indicator of Water Quality in the Redwood River Near Vesta, Minnesota
 2:15.....Elina Bajracharya, Environmental Science, Changes in Precipitation and Lake Levels in Lyon County, Southwest Minnesota
 2:30.....Abbey Finken, Environmental Science, Evaluation of the Sand Composition of the Minnesota River
 2:45.....Levi Windingstad, Environmental Science, Investigation of the Antelope Moraine in Lyon and Yellow Medicine Counties Minnesota
 3:00.....David D. Kriesel, Psychology, A Service Dog In Social Interaction
 3:15.....**BREAK**
 3:30.....Sara O’Konek, LaKeisha Burns & Sharon Carlson, English/Scientific & Technical Writing, Locally Grown Food on Campus
 3:45.....Brooke Burmeister, Maxx Raths & Sally Grams, English/Scientific & Technical Writing, Reducing Costs and Energy Use in Restrooms
 4:00.....Brynn Berens & Ben Tiensvold, English/Scientific & Technical Writing, Sustainable Lighting
 4:15.....Ashlenn Thommes, Ashley Diekmann & Travis Radke, English/Scientific & Technical Writing, Sustainability Through Interior Design
 4:30.....Lauren Teal, Katie Robertson & Jena Thompson, English/Scientific & Technical Writing, Repurposing Used Cooking Oil

Platform Session B

SMSU Charter Hall 201

- 9:45.....Bethany Hultgren, Ben Pedersen & Joe Christensen, Ecology, Density of gall-forming parasites, the gall fly and gall boring beetle, in Canada Goldenrod
 10:00.....Rachel Patnoe, Ashley Edwards & Jessica Peterson, Ecology, Insect Diversity in Southwest Minnesota

- 10:15.....Seifemichael Kenea, Bina Lama & Kevin Okello, Ecology, Density of Trees Species Along an Elevational Gradient in Camden State Park, Minnesota
- 10:30.....**BREAK**
- 10:45.....Jenna Carlson, Roma kc & Anil Pande, Ecology, Effect of Habitat and Gall Presence on Shoot and Inflorescence Biomass of Canada Goldenrod (*Solidago canadensis*)
- 11:00Leah Peck, Brittany Van Overbeke & John Craig, Ecology, Quantification of Chlorophyll Pigmentation in Burning Bush (*Euonymus alatus*) and Ginkgo Tree (*Ginkgo biloba*) over a Three-week Period in Fall 2012
- 11:15Samantha Pehrson & Azhar Adam, Political Science, Results of the 2012 Lyon County Exit Poll
- 11:30Justine Buchman, Psychology, PTSD Symptoms: Civilian vs. Military Personnel
- 11:45Neharika Upadhyaya, Mayra Montelongo & Chandan Gupta, Ecology, Density of Prairie Dock, an Invasive Native Species, in the SMSU Wildlife Area
- 12:00-1:30—Lunch Break**
- 1:30.....Amy Johnson, Art History, Anubis and the Art of the Dead
- 1:45.....Tara Borman, Art History, Egyptian Cats: Mummies and Gods
- 2:00.....Ann Kopitzke, Psychology, We're All a Bit Racist
- 2:15.....Sujeeta Maskey, Trista Hacker & James Oliver, Ecology, Diversity of Airborne Insects in the Prairie and Coniferous Forest of the SMSU Wildlife Area
- 2:30.....Diana Moe & Jessica Sheehan, Ecology, Survivorship of Men and Women from Lyon County Minnesota During the Spanish Influenza Pandemic
- 2:45.....Amy Dreessen, Gabrielle Dufour & Molly Manthe, Ecology, Change in Bird Density in Six Counties of Southwest Minnesota Over a Ten Year Period

Platform Session C

SMSU Bellows Academic 102

- 11:15Christian Brown, History, Superheroes Through the Ages
- 11:30Anna Gwendolyn Eben, Theatre, Elizabethan Costume: Hamlet
- 11:45Jessa Roberts, Theatre, Medieval Theatre: Miracle, Mystery, Morality
- 12:00-1:30—Lunch Break**
- 1:30.....Callie Frank, Theatre, Romeo and Juliet: Influences in Entertainment
- 1:45.....Andrew O. Kompelien, Theatre, Greek & Roman Costumes
- 2:00.....Krista Steen, History, The Cuban Revolution's Effect on Education and Ballet
- 2:15.....Ryan Risa, Theatre, History of the Greeks: Theatre and Thespis
- 2:30.....Emily Schoepfoerster, History, Emmeline Pankhurst and the Women's Social and Political Union: Scholarly Interpretations Through the Ages
- 2:45.....Lynn Lafky, Theatre, The Beginning of Opera in the Italian Renaissance
- 3:00.....Kevin Riemenschneider, History, The Media's Darkest Hour: How Propaganda Killed Millions in World War II
- 3:15.....BREAK**
- 3:30.....Brian Bau, History, Edmund Burke and Thomas Paine
- 3:45.....Jason S. Weber, History, A University and its Nickname: The History of the Fighting Sioux and the University of North Dakota
- 4:00.....Tyler Wagner, Psychology, Can your social profile help get you a date?

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: Agronomy, Ag Business, Accounting, Biology, Chemistry, Environmental Science, Exercise Science, Sociology

- 1.....Leah D. Riley, Biology, Increased Polyunsaturated Fatty Acid Supply to Central Nervous System Promotes Neurodevelopment and Neuroprotection, 10:30-11:30
- 2.....Amy Dreessen, Biology, Apoptotic Effects of Lenalidomide on Cells with 5q Deletions in Myelodysplastic Syndromes, 9:45-10:15; 1:30-2:00
- 3.....Stephanie Tulibaski, Biology, Effects of Cocoa Flavonols on Blood Pressure Through Vasodilation, 3:00-4:00
- 4.....Alexis Peters, Jerry Bockman & Mark Christopherson, Biology, Comparing the Allelopathic Effects of Juglone on Tomato and Barley, Bockman 11:00-11:45; Peters/ Christopherson 1:30-2:15
- 5.....ReNae Clark, Chryseis Tvedt, Barry Alderson & Lisa Panitzke Agronomy, Effect of Temperature and Salinity on Rate of Germination of Corn, Wheat, and Soybean Seeds, 3:30-4:15
- 6.....Haley Gudim & Kaitlyn Norell, Exercise Science, Comparison of Dietary Intakes Between Wheelchair and Able-Bodied Basketball Players, 1:30-2:15

- 7.....Angela Wieland, Chemistry, Electrochemical Trace Analysis of Simazine, 2:30-3:15
- 8.....Alexis Walker, Chelsea Robinson & Theresa Ehnert, Biology, Allelopathic Effects of Thyme on Zinnias, Ehnert/Robinson 9:45-10:30; Walker 11:15-12:00
- 9.....Sujeeta Maskey, Environmental Science, Observation of Seasonal Changes in Market Street Mall Wetland, Marshall, 3:30-5:00
- 10.....Molly Manthe, Biology, A Potential Molecular Mechanism for Asthma, 1:00-1:30;4:30-5:00
- 11.....Jenna Carlson, Biology, Effects and Prevention of Accumulation of Cadmium with Regard to Wet Age-Related Macular Degeneration, 11:30-12:00; 2:00-2:30
- 12.....Drew Hultquist, Environmental Science, Seasonal Changes in a Transitional Wet Meadow-Shallow Marsh Wetland in Southwest Minnesota, 4:00-5:00
- 13.....Drew Hultquist, Biology, Possible Mechanisms for Biological Control of the Emerald Ash Borer (*Agrilus planipennis*), 1:30-2:00; 3:30-4:00
- 14.....Leah Peck, Biology, Substrate Reduction Therapy using N-butyldeoxygalactonojirimycin Improves Overall Outcomes in Patients with Lysosomal Storage Diseases, 11:30-12:00; 2:30-3:00
- 15.....Katelyne Alderson, Biology, Factors that Contribute to the Long Term Sustainability of Coral Reefs, (withdrawn)
- 16.....Joe Christensen, Environmental Science, Changes in a Redwood River Riparian Wetland from Late Summer to Fall 2012, 3:30-5:00
- 17.....Erin Erickson, Exercise Science, The Evolution of the Doctorate of Physical Therapy Program, 1:00-1:45
- 18.....Jessica Sheehan, Biology, Copper Induced Olfactory Response and Recovery to Salmon Populations, 10:00-10:30; 4:00-4:30
- 19.....Brittany Van Overbeke, Biology, Effectiveness and Possible Mechanism of Alendronate (Fosamax) and Vitamin D3 on Osteoporosis, 1:30-2:30
- 20.....Ashley Edwards, Biology, Treatment of Anemia in Myelodysplastic Syndromes (MDS) with Erythropoietin (EPO) and Granulocyte Colony Stimulating Factor (G-CSF), 11:00-11:30; 3:00-3:30
- 21.....Nicholas Dorman, Laura Ness, Gregory Pavek & Walker Schaar, Biology, The Effects of Floralife and Silver Nitrate on Vase Life of the Common Rose Ness/Dorman 9:45-10:30; Pavek/Schaar 1:00-1:45
- 22.....Kaitlyn Konz & Gillian Rolfe, Biology, Allelopathic Effects of Coffee (*Coffea arabica*) on Barley (*Hordeum vulgare*) Seed Germination and Dry Weight, 1:30-2:15
- 23.....David Williamson, Biology, Treatment Options for Attention-Deficit/Hyperactivity Disorder (ADHD): Stimulant versus Non-Stimulant Medications, 11:30-12:00; 2:30-3:00
- 24.....Gregory Pavek, Environmental Science, Water Quality and Seasonal Changes in Marshall Flood Diversion Channel Wetland, 3:30-5:00
- 25.....Deewan Bajracharya, Bina Lama & Dawa Rai, Biology, The Effects of Citric Acid on Vase Life of Cut Carnations, Bajracharya 10:00-10:45; Lama/Rai 3:15-4:00
- 26.....Britt Wickett & Mark S. Chollmeyer, Exercise Science, Effects of Muscular Strength Characteristics on Running Acceleration in Division 2 College Football Players, 11:00-11:45
- 27.....Craig Popper, Exercise Science, Academic Satisfaction of Wheelchair Athletes at SMSU, 1:45-2:30
- 28.....Jared Wagner, Environmental Science, Seasonal Changes in Good Medicine Wildlife Management Area Wetland Fall 2012, 3:30-5:00
- 29.....Lisa Schroeder, Exercise Science, The Effect of Acute Moderate Exercise on the Stroop Effect, 11:15-12:00
- 30.....Gannon Moore & Adam Iversen, Exercise Science, Effects of a Novel Stretching Method on Standing Broad Jump, 1:45-2:30
- 31.....Kasey Schreiber, Kim Rothmeier & Beth Ochs, Exercise Science, The Effects of Caffeine on the Rockport Walk Test, 2:00-2:45
- 32.....Tony Ross, Environmental Science, Monitoring of Seasonal Changes in Marshall, Minnesota's Runnings Wetland, 3:30-5:00
- 33.....Eryn Hubbard & Joshua Watterson, Exercise Science, Post-Exercise Ankle Brachial Index in Spinal Cord Injured/Affected Individuals, 2:30-3:15
- 34.....John R. Callaghan, Environmental Science, Observations and Analysis of Independence Park Wetland, 3:30-5:00
- 35.....Ashley Vikander & Briann Gutzke, Exercise Science, Performance of Collegiate Wheelchair Basketball Athletes on the National Wheelchair Basketball Association Skills Test, 2:45-3:30
- 36.....Manisha Bajracharya, Exercise Science, Influence of Exercise on Mood State, 10:30-11:15
- 37.....Levi Windingstad, Environmental Science, Effects of Seasonal Change on the Riparian Wetland Adjacent to the SMSU Soccer Field, 3:30-5:00
- 38.....Jenny Johnson, Exercise Science, Ratio of Hamstring/Quadriceps Strength of Collegiate Softball Players, 1:00-1:45
- 39.....Neharika Upadhyaya & Alan Porter, Biology, The Allelopathic Effect of Pine Extract on Zinnia Plants, 10:45-11:30
- 40.....Lance Schuveiller, Exercise Science, Kicking Characteristics and Foot Acceleration in Two Different American Football Kicking Styles, 11:00-11:45
- 41.....Hannah Beeler, Environmental Science, Observations and Data Analysis of the Americlwn Wetland, 3:30-5:00

- 42.....Bailey Andersen, Sabrina Espinoza & Sharon Carlson, Biology, Effects of Orange, Lemon, and Grapefruit Peel as a Weed Inhibitor, Carlson 10:15-11:00; Espinosa/Anderson 3:15-4:00
- 43.....Gatluk Chuol, Ag Business, Agricultural Development in Sudan, 3:00-4:30
- 44.....Lauren Haase, Sociology, The Effects of a Criminal Background on Employment, 2:30-4:00
- 45.....Maureen Carmody, Samantha Trebesch & Troy Robert Bockelmann, Ag Business, Agriculture in Bangladesh, 3:00-4:30
- 46.....Bryan Creamer, Sociology, A Glimpse into Motion Pictures and How Personality Traits of Characters with Disabilities are Portrayed, 2:00-3:30
- 47.....Manisha Prajapati, Environmental Science, Observation of Seasonal Changes in the SMSU Event Center Wetland, 3:30-5:00
- 48.....Laramie Wynia, Accounting, Is it beneficial to implant beef feeder cattle? 10:30-12:00
- 49.....Christy Van Dyke, Accounting, Frequent Flyer Miles Taxation, 9:45-11:00
- 50.....Tyler Templer, Accounting, Financial Benefits for the United States to Switch to the Metric System, 10:30-12:00
- 51.....Greg Van Ruler, Accounting, The Pros and Cons of Owning a Small Wind Generator, 10:30-12:00

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: Interdisciplinary Studies, Psychology

- 52.....Jordan DeMarre, Haley Jacobsen & Jaclyn Wallace, Interdisciplinary Studies, Women in Crime, 9:45-11:15
- 53.....Brianna Brush, Stephanie Vorvick & Whitney Sandven, Interdisciplinary Studies, Women's Colleges and Co-ed Institutions, 3:00-4:30
- 54.....Tramel Barnes, Kris Penick, Sandra Castillo & Cynthia Cordova, Interdisciplinary Studies, Women, Their Bodies and Violence, 9:45-11:15
- 55.....Lois Sauck & Chris Lascotte, Interdisciplinary Studies, Paid and Unpaid Work, 2:30-4:00
- 56.....Dawn Gartner, Leann Heimer & Alejandro Dominquez, Interdisciplinary Studies, Legalizing Prostitution, 2:30-4:00
- 57.....Naomi Scheche, Devin Terry & Kayla Kruger, Interdisciplinary Studies, Women and Poverty, 9:45-11:15
- 58.....Morgan Wee, Jennifer Cox, Ashley Peterson & Veronica Esquivel, Interdisciplinary Studies, The Law Behind Women as Property, 9:45-11:15
- 59.....Brianna Brush, Psychology, RateMyProfessor.com Guide to Quality and Easiness, 1:30-3:00
- 60.....Alex Gleason & Shyranda Hornick, Psychology, How Drinking is Associated to Grades, 3:00-4:30
- 61.....Shannon Marholtz & Ashley Bublitz, Psychology, The Power of Education in the War Against Mental Illness Stigma, 10:30-12:00
- 62.....Megan Wilgenbusch, Psychology, Effectiveness of Makeup on a Waitress, 10:30-12:00
- 63.....Kimberley Einck, Psychology, The Effects of a Student/Teacher Sexual Relationship, 9:45-11:15
- 64.....Cadie Meyer & Kristi Eisenbraun, Psychology, Social Facilitation: The Effect of Competition, 2:00-3:30
- 65.....Rachel Trueblood, Psychology, The Relation Between Personality, Gender, and Classroom Seat Selection, 1:30-3:00
- 66.....Adam Ogdahl, Psychology, Do Pistols Equal Peace? 1:30-3:00
- 67.....Catherine Barstow, Psychology, Does Age Affect Level of Conformity? 3:00-4:30
- 68.....Rebecca Holmblad, Psychology, Battle of the Classes: Who Drinks More, 9:45-11:15
- 69.....Michelle Hoek, Psychology, Gender and Age Differences in College Students' Attitudes Toward the Young and Old, 10:00-11:30
- 70.....Justin Nielsen, Psychology, Prayer, Attendance and Religious Satisfaction, 11:30-1:00
- 71.....Brianna Brush, Samuel Bonsu & Shannon Mahoney, Psychology, Cross-Racial Face Recognition, 9:45-11:15
- 72.....Justin Nielsen & Gena Stevens, Psychology, Effective Learning Strategies for Test Cramming, 1:00-2:30
- 73.....Kristina Trembley & Shyranda Hornick, Psychology, Effects of Instructions to Pay Attention on the Monkey Business Illusion, 9:45-11:15
- 74.....Justine Buchman & Kayla Kruger, Psychology, Eyewitness Testimony: Can it be Trusted? 3:15-4:45
- 75.....Tyler Wagner & Natasha Drackley, Psychology, Recognizing Your Name in a Word Scramble, 10:00-11:30
- 76.....Melissa Pannell & Britton Dyer, Psychology, Everyday Occurrences and Memory, 3:15-4:45
- 77.....Sara Raddatz & Catherine Barstow, Psychology, How Much Do We Miss When We Don't Pay Attention? 9:45-11:15
- 78.....Stephanie Vorvick & Kayli Timm, Psychology, The Effects of Detail Orientation and Gender on Change Blindness, 1:00-2:30
- 79.....Corrie Weizel & Tony Ross, Psychology, Effects of Technology on Child Development, 1:00-2:30
- 80.....Rachel Patnoe, Haley Gudim & Christopher Dehncke, Psychology, Bullying Amongst Elementary-Aged Children: An Analysis from Two Perspectives, 10:30-12:00
- 81.....Bethany Kruggel, Psychology, What is the Relationship Between Suicide and Gender? 1:00-2:30

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: Accounting, Computer Science, History

- 82Garrett Albright, History, Forensic Science: The History of A Science, 12:30-2:00
- 83Ann Kopitzke, History, Plague of the Black Dog, 12:00-1:30
- 84Julia Viviana Santiago, History, The Empty Pages of History: Everyday Life of Children in the Holocaust, 9:45-11:15
- 85Alexander Wannigman, History, History of Pharmacy, 9:45-11:15
- 86Kyle Berndt, History, Minnesota Volunteers, Early Minnesotan Leaders, 9:45-11:15
- 87Samantha Pehrson, History, The World's First Oil Co-Op, 12:00-1:30
- 88Mitch Dahlke, Accounting, U.S. Government's Need to Control the Deficit, 1:00-2:30
- 89Stephanie Fransen, Accounting, Reporting Tips: Choice or Automatic, 1:00-2:30
- 90Brian Harberts, Accounting, Tired of High Taxes?
- 91Abby Knutson, Accounting, Creative Accounting: Where is the Boundary? 1:00-2:30
- 92Haoua Kombeogo, Accounting, IFRS & U.S.GAAP Convergence: Good or Bad? 1:30-3:00
- 93Brad Lanners, Accounting, Annual Budget vs Rolling Budget, 9:45-11:15
- 94Brian Meling, Accounting, Should GMO Foods be Labeled, 11:00-12:30
- 95Amanda Schmitz, Accounting, The Economic Impact of Hosting the Olympic Games: Is it Worth the Fight? 3:30-5:00
- 96Alex Derringer, Computer Science, Google Maps and Android: Mapping the Marshall Bus Routes, *10:30-11:15; 2:30-3:15
- 97Shane Bass, Computer Science, AndFinance: A Personal Finance Manager for Android Devices, *10:30-11:15; 2:30-3:15
- 98Kweku Kponyoh, Computer Science, Unit Converter, *9:30-10:15; 1:30-2:15
- 99Jacob Harrington & Parker Weihe, Computer Science, Legend of the Blade, *2:30-4:00
- 100Lynn Lafky, Computer Science, School Schedule Program, *9:30-11:00
- 101Missy Mueller, Psychology, Stress in College Students, 2:00-3:30
- 102Lauren Teal, Sociology, Portrayal of GLB in the Media, 10:30-12:00,

*Demonstration in SM 274

Original Works Session A

Student Center Upper Level, Artists next to work 1:00-2:30 pm

Displayed Monday, Dec. 3 through Monday, Dec. 10, 2012

- 1Crystal Severance, Guilt, Box Assemblage
- 2Kiley Beste, Lockout, Box Assemblage
- 3Kao Jong Yang, Equality of Both Husband and Wife Now, Box Assemblage
- 4David Kelsey Bassett, Value Topography
- 5Jayme Plimpton, "Girl," Hole-Punch Collage
- 6Sia Lor, Viewfinder, Still Life

Keynote Address: “The Story of the Columbia River – The real-time application of scientific data”

Keynote Speaker: Margaret J. Filardo, Ph.D.
Senior Scientist, Fish Passage Center
Portland, Oregon

Margaret J. Filardo, Ph.D. has been a senior scientist at the Fish Passage Center (FPC) working on hydropower issues related to salmon populations for over 20 years. The Fish Passage Center located in Portland, Oregon, U.S.A., was originally established in 1982 to provide technical services to the state and federal fishery agencies and Native American tribes impacted by the operation of the Federal Columbia River Power System.

The FPC plans and implements the annual Smolt Monitoring Program (SMP) and the Gas Bubble Trauma study (GBT), which provides daily information for in-season juvenile salmon passage management decisions. The FPC also provides the agencies and tribes with reservoir operation information and analysis, including current and historical data. In addition, FPC coordinates the implementation of the joint agencies and tribes comparative survival study (CSS) which tracks salmon survival from the juvenile to adult stage as a function of juvenile passage route through the hydrosystem during seaward juvenile downstream migration.

Abstracts

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

1

Title: Sodium Analysis in Redwood River Water in Southwest Minnesota

Presenter(s): Wokil Bam

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

Abstract: Sodium salts are used as water softeners, waste water treatment chemicals and for deicing roads. Runoff from roads and treatment facilities has increased sodium concentrations in streams and rivers reducing the water quality. Atomic absorption spectrophotometer was used to determine sodium concentrations in the Redwood River summer 2012. Water was collected from 10 sites along the river once a month for 4 months (May-Aug) and analyzed for sodium. Sodium concentrations varied from 6.7 mg/L to 350 mg/L and were significantly higher at the 4 downstream sites (165 -346 mg/L) compared to the upstream sites (6.7—20 mg/L) for all 4 months. Sodium concentrations also varied with time showing increased concentrations in August at all 10 sites compared to May samples. Urbanization and human activities seem to have contributed to increased sodium concentration in river water and the extreme drought conditions summer 2012 may have also contributed to the unusually high values measured.

2

Title: Effects of Barley Extract on the Growth of Algae *Spirogyra*, *Synedra*, and *Ankistrodesmus*

Presenter(s): Brooke Burmeister

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

Abstract: Excessive amounts of algae are a nuisance in lakes. Experiments were conducted to determine the efficacy of barley straw extract in controlling algal growth in three freshwater algae. *Spirogyra* (filamentous green algae), *Synedra* (diatom), and *Ankistrodesmus* (single celled green algae) were exposed to barley straw extract in an environmental chamber for nine days. Algae was exposed in 50 mL test tubes with five replicates of each treatment, five replicates of algae with no

barley extract (control) and five tubes barley with no algae. Chlorophyll concentrations were analyzed at the beginning and end of the study to determine effects on the growth of the algae. All three species of algae grew in the unexposed controls, but growth was statistically significantly reduced for all three species when exposed to barley extract (ANOVA, $p \leq 0.05$). Results indicate that barley could be used as an algistatic agent to control algae growth.

3

Title: *Staphylococci* Occurrence and Resistance to Antibiotics on the Southwest Minnesota State University Campus

Presenter(s): Rachel Graupmann

Advisor: Drs. Emily Deaver and Thomas Dilley, Environmental Science; Dr. Tony Greenfield, Biology

Abstract: *Staphylococcus aureus* is a potentially harmful human pathogen to weakened immune systems, and has become more resistant to antibiotics. Objects such as soap dispensers, doors, drinking fountains, hand railings, and computer keys, in ten SMSU buildings were swabbed to determine the density of *Staphylococcus* present on July 24th, August 31st, and September 10th of 2012. Percent of *S. aureus* showing antibiotic resistance to 6 antibiotics (Cefoxitin, Doxycycline, Oxacillin, Erythromycin, Vancomycin and Rifampin) was determined. Density of *Staphylococcus* increased as the concentration of students and faculty increased. Objects with the greatest amount of skin contact had the highest counts, such as the computer keys in the CH building. Resistance testing showed *S. aureus* had a remarkably high percent of resistance to the antibiotic Erythromycin at 23.44%. The percent of *S. aureus* resistant to the other five antibiotics was less than 8% resulting in a low health concern on the SMSU campus.

4

Title: The Effectiveness of Worm and Minnow Bait for Catching Fish at Big Creek Lake

Presenter(s): John R. Callaghan

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

Abstract: Freshwater fish predatory responses to live bait Canadian Night crawlers (worms) and Bluntnosed (minnows) was measured at Big Creek State Park in Polk County, Iowa at two sites, fished 16 times in the summer of 2012. Baits were fished for 30 minutes at each site during varying times of the day. Forty- three fish were caught and documented according to species, length, and bait used for capture. Environmental conditions of barometric

pressure, air temperature, water temperature, and moon phases were documented as uncontrolled variables. Worm baits resulted in 15 fish caught from the boat dock and 5 fish caught from the handicap pier with an average of 1.1 per day. Corresponding minnow bait catches resulted in 14 fish from the boat dock and 9 caught from the handicap dock with an average of 1.4 per day respectively. No statistical differences in catch rates for either site or bait type existed.

5

Title: An Evaluation of the Ring-necked Pheasant (*Phasianus colchicus*) Population in Lyon County, Minnesota

Presenter(s): Tony Ross

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

Abstract: The Minnesota Department of Natural Resources (DNR) completes 171 roadside surveys the first half of August annually to determine the number of pheasants in the state. This project involved driving two DNR routes in Lyon County, MN four times each and comparing results to the DNR method of single sampling per route. Routes were driven regardless of weather conditions, unlike the DNR's strategy of sampling only under ideal weather conditions. Ideal weather conditions include heavy dew, <60% cloud cover, and <10 mph winds. Routes were driven 15-20 mph. Population counts, brood ages, pheasant distribution, and habitat were recorded. There were no statistical differences in pheasant counts from any of the 8 days of data. Comparison with the DNR data indicated similar results using either sampling method. Mean counts were lower than the DNR data, which is likely due to averaging of data collected under less than ideal conditions.

6

Title: Diversity of Invertebrates in a Prairie, Tree-Covered and Mowed Lawn Area of the ADM-SMSU Environmental Learning Center

Presenter(s): Diana Moe

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

Abstract: Terrestrial invertebrates are important because they help with decomposition, nutrient cycling, pollination, and destroying seeds. It is expected that a prairie habitat will have greater invertebrate diversity than a tree-covered or mowed lawn habitat. Nine pitfall traps 5 meters apart in 10x10m sections were placed in prairie, tree-covered and mowed lawn habitats in Marshall, MN from June 20-July 11, 2012. Traps were emptied weekly. A total of 10,113 individuals in 16 different

orders were collected. Chi Square analysis indicated a significant difference between the 3 sites with Shannon Weaver density index showing higher diversity in the prairie. The prairie had mainly insects from the Hymenoptera and Coleoptera orders. The tree-covered had mostly Isopoda and Opiliones. The mowed lawn consisted mainly of Symphylenoa. The prairie area was more diverse because it has greater plant diversity.

7

Title: Comparing the Metabolic Fingerprint of Bacterial Communities in Different Sites of the Redwood River in Marshall, MN

Presenter(s): Hadiza Raji

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

Abstract: The purpose of this study was to characterize and compare bacterial communities at 3 sites on the Redwood River near Marshall, Minnesota. The first site was upstream of Marshall draining predominantly agricultural fields; the second site was in Marshall and was both industrial and residential while the third site was downstream and included runoff from Marshall and agricultural fields. The third site was hypothesized to have the highest bacterial community because of the possibility of nutrient rich runoff from surrounding agricultural fields. Two water samples were collected per site in May and in August 2012 and water quality parameters such as dissolved oxygen, alkalinity, nitrogen, phosphate and pH were measured. Using Biolog Eco plates bacteria populations were shown to utilize different carbon substrates. Results were analyzed for percent functional diversity, percent variation and percent similarity between sites. Hypothesis was not proven due to an overall similarity in all three sites.

8

Title: Historical Population Expansion and Land Use in Lyon County and Marshall, Minnesota

Presenter(s): Stephanie Speer

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

Abstract: Population and land use changes from 1870 to present were researched to understand growth and change in the area. Ethnic population, businesses, city budget and water consumption were also researched and evaluated. The population was dominated by people from the United Kingdom (1875-1920). More recently it has been populated by Somali, Hmong and Hispanic people. Land use prior to settlement of Lyon County was mainly prairie/wet prairie is now dominated by cropland. Business has

shifted from local merchants, professionals and artisans to large national employers but the area has consistently remained a farming community. Marshall per capita water consumption increased from < than 10,000 gallons in 1900 to a maximum of 100,000 gallons in 1997. Water use dropped after 1997 (1997-2011) by ≈10,000 gallons, despite population increases of ≈2,000 people over the same period. Population has been relatively stable at ≈ 12,000-13,000 people since 1990

9

Title: "Well, This Is Weird"- Creative Writing Senior Readings

Presenter(s): Nick White

Advisor: Marianne Zarzana, Creative Writing

Abstract: I will be performing spoken word poetry, prose poetry and fiction. My work comes from a creative mix of personal experience and imagination.

10

Title: "Well, This Is Weird"- Creative Writing Senior Readings

Presenter(s): Brittney Heimermann

Advisor: Marianne Zarzana, Creative Writing

Abstract: In my poetry, I try to establish a universal connection with readers through my experiences. I hope that those who read my work reflect on their own life and take away something unique.

11

Title: "Well, This Is Weird"- Creative Writing Senior Readings

Presenter(s): Wes Huntington

Advisor: Marianne Zarzana, Creative Writing

Abstract: My fiction typically involves elements gathered from TV, the Internet and other media sources. Although I have not written crime fiction in the past, the story I will be reading has been an interesting experiment. To add texture and authenticity to this piece, I did research to gather information about police precincts and criminal statistics

12

Title: Characterization of Quaternary Glacial Lake Marshall

Presenter(s): Kevin Okello

Advisor: Drs. Thomas Dilley and Emily Deaver, Environmental Science; Charles Kost, GIS Center Director

Abstract: Quaternary Glacial Lake Marshall was located in southwest Minnesota. Studies indicate it stretched from northern banks of Lake Marshall in Lyon County to Yellow Medicine County. The lake is important because it demonstrates that the Des

Moines Lobe of the Laurentide ice sheet which had dominated the landscape during the Pleistocene Epoch melted and a plain developed as a glaciolacustrine deposit. This study shows the previous existence, size and distribution of the lake by investigating the topographic field relationships of the lake plain and associated soils. The Colvin-Bearden soil complex is the dominant soil on the lake plain along with Canisteo clay loam and Malachy loam. These soils are generally fine-grained and poorly drained on the very flat- lying glacial lake plain reflecting the silty glaciolacustrine parent material.

13

Title: Benthic Macroinvertebrates as an Indicator of Water Quality in the Redwood River near Vesta, Minnesota

Presenter(s): Brian Nordby

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

Abstract: Benthic macroinvertebrates are indicators of water quality due to their sensitivity to pollutants. Hester-Dendy Samplers (HD) were used to collect macroinvertebrates at 2 sites on the Redwood River near Vesta, Minnesota. It was expected that an upstream site near a Wetland Management Area would have a higher diversity of organisms and better water quality than a downstream site. Three HD were placed at each site for 3 weeks in June and again August 2012. Data analysis using the Shannon Weaver Diversity Index showed similar diversity at both sites and a similar reduction in diversity from June to August. Water quality tests were performed with LaMotte test kits. Both sites had similar water quality based on the EPT evaluation of pollution sensitive organisms. The decrease in diversity and water quality June to August may be related to extreme drought conditions experienced summer 2012.

14

Title: Changes in Precipitation and Lake Levels in Lyon County, Southwest Minnesota

Presenter(s): Elina Bajracharya

Advisor: Drs. Thomas Dilley and Emily Deaver, Environmental Science; Charles Kost, GIS Center Director

Abstract: Precipitation and lake levels determine the hydrologic properties of lake systems. Goose Lake, Wood Lake and Island lake were studied for four random years; 1938, 1991, 2004 and 2010. Aerial photographs and GIS were used to determine the lake area changes for the years studied. The

lake levels showed direct correlation with the precipitation data with lake levels increasing since 1938 along with precipitation. Comparing lake areas for year 1938 with 1991, Island Lake increased 62%, Goose Lake increased 2.5% and the most significant change was shown at Wood Lake with about 107% increment in lake area since 1938 to 1991 while precipitation increased 35% during the same time for all lakes. Groundwater, climate, soil morphology and human factors like dams and drains around those lakes also had effects on lake levels.

15

Title: Evaluation of the Sand Composition of the Minnesota River

Presenter(s): Abbey Finken

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

Abstract: The Precambrian rocks in the Minnesota River Valley consist of Archean through Proterozoic granite, gneiss and the Sioux Quartzite that are mantled in part by the Wisconsin Glaciation glacial till. The sand in the Minnesota River was sampled to determine if sand composition changes with different bedrock. Five samples from different locations were collected. Four hundred grains from each sample were counted, the mineral types were recorded and this process was repeated three times. The results were analyzed using an ANOVA test that showed there was no significant difference between sites. The difference in sand composition to bedrock composition can be explained by the abundance of glacial till which mantles and masks the local bedrock. The Precambrian outcrops in the valley appear to have a small impact on sand composition due to the limited amount of exposed rock and its resistance to weathering.

16

Title: Investigation of the Antelope Moraine in Lyon and Yellow Medicine Counties Minnesota

Presenter(s): Levi Windingstad

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

Abstract: The landscape of southwest Minnesota was influenced by glacial geomorphic processes related to the retreats and advances of the Des Moines Lobe of the Laurentide Ice Sheet during the Quaternary. The Antelope Moraine is a geomorphic and topographic feature that was first documented in 1932, but most recent publications omit the feature. Field observations, GIS, and soil data were used to delineate and characterize the feature. The overall linear trend is northwest to southeast parallel to the

Bemis, Altamont, and Gary Moraines. Topographic profiles exhibit a maximum difference of 12 meters of relief and displays kame and kettle topography. Ves and Storden loams and Canisteo clay are dominant soils on the Antelope Moraine and form on unstratified glacial drift and correlate spatially with moraines. The average width of feature is 15,200 meters with a minimum of 13,300 and a maximum 17,600 meters. This data supports the classification as a moraine.

17

Title: A Service Dog In Social Interaction

Presenter(s): David D. Kriesel

Advisor: Dr. Scott Peterson, Psychology

Abstract: Humans rarely would intentionally ignore others without probable cause. Unfortunately, as humans, we tend to ignore people who are disabled, not because they are different but because we are unaware we are ignoring them. My research examines the social interactions between people and the disabled, and whether a service dog plays a role in the social environment. Many see the service dog as a helper and guide for the disabled, but is the dog doing something more? Studies show that people are more likely to approach those who have a handicap if there is a dog present. Also, in the presence of the dog, people perceive the disabled person as more likable and nice. My research suggests that a service dog does much more for the disabled than just what the dog is trained for.

18

Title: Locally Grown Food on Campus

Presenter(s): Sara O'Konek, LaKeisha Burns & Sharon Carlson

Advisor: Dr. Teresa Henning, English

Abstract: The purpose of this presentation is to determine whether or not using locally grown food is sustainable for SMSU to use within the school. Using the research we conducted and analyzed we believe that using locally grown food within SMSU is not only beneficial to our economy but also to our health. The methods we used to collect data were doing library research, interviewing key people within the school contacting local food growers. When we conducted these studies, we came to the conclusion that using local food is good for our school, economy, and health. With the results we found, our recommendation is to use locally grown food within SMSU.

19

Title: Reducing Costs and Energy Use in Restrooms

Presenter(s): Brooke Burmeister, Maxx Raths & Sally Grams

Advisor: Dr. Teresa Henning, English

Abstract: The goal of this presentation is to consider how SMSU can reduce energy usage and save money with the use of high speed jet dryers. We examined whether high speed jet dryers are sustainable and are worth installing in restrooms on campus at SMSU. We evaluated energy usage, cost of installation, and compared high speed jet dryers against paper towels, other hand dryers, and the amount of waste that can be reduced. Our recommendation is that overall high jet speed jet dryers would save SMSU money in the long run, reduce the amount of bacteria contracted in restrooms, and eliminate restroom paper towel waste. This solution would benefit the campus of SMSU in its entirety.

20

Title: Sustainable Lighting

Presenter(s): Brynn Berens & Ben Tiensvold

Advisor: Dr. Teresa Henning, English

Abstract: The purpose of this presentation is to explain how SMSU can save energy by implementing sustainable lighting on campus. After analyzing the current lighting situation at SMSU, we argue in this talk that implementing sustainable lighting in the forms of motion-sensored lighting, skylights and solar paneling will decrease SMSU's energy usage. Our research plan included five phases: (1) researching the current lighting situation at SMSU, (2) gathering information on sustainable lighting, (3) discovering what types of sustainable lighting can be implemented at SMSU, (4) interviewing physical plant and maintenance specialists at SMSU and (5) researching the costs and benefits of sustainable lighting. By comparing the current monthly electricity bill at SMSU versus the electricity savings by using sustainable lighting, we were able to measure the savings created by implementing sustainable lighting.

21

Title: Sustainability through Interior Design

Presenter(s): Ashlinn Thommes, Ashley Diekmann & Travis Radke

Advisor: Dr. Teresa Henning, English

Abstract: The purpose of this presentation is to analyze how SMSU could renovate using sustainable interior design. Through library research, interviews, and web research of companies that sell products made from recycled material, we evaluate

various methods of incorporating sustainable interior design in the updating of SMSU's campus. We will consider five crucial components of updating classrooms on the SMSU campus through sustainable interior design: (1) lighting, (2) ceiling tiles, (3) furniture, (4) hall windows, and (5) paint. The presentation will explain why using sustainable interior design benefits SMSU in both the immediate and extended future.

22

Title: Repurposing Used Cooking Oil

Presenter(s): Lauren Teal, Katie Robertson & Jena Thompson

Advisor: Dr. Teresa Henning, English

Abstract: The purpose of this presentation is to determine whether the Southwest Minnesota State University campus can convert used cooking oil into biodiesel fuel resulting in profit. We will make this determination by (1) identifying the problem, (2) determining SMSU's current disposal method, (3) gathering information via library research, (4) analyzing other school's current processes of repurposing cooking oil, and (5) recommend a new process at SMSU. After analyzing our current method of disposal we have come to the conclusion that there is room for improvement. By repurposing cooking oil, the school stands to receive monetary benefits along with becoming more eco-friendly.

Oral Session B- CH 201 Biology, Psychology, Art History and Political Science

23

Title: Densities of gall forming parasites in Canada Goldenrod, the gall fly and gall boring beetle

Presenter(s): Bethany Hultgren, Ben Pedersen & Joe Christensen

Advisor: Dr. Betsy Desy, Biology

Abstract: Goldenrod is a very important plant in prairie ecosystems because it is one of the more abundant flowering plants. Goldenrod plants are commonly parasitized by insects that cause a bulbous structure, called a gall, on the stem. This study focused on goldenrod in the 1 ha. prairie of the SMSU wildlife area. Here, we determined the percentage of gall-forming insect larva in goldenrod plants, the species of larva in each gall, and the frequency of each larval species. We collected 162 plants with galls from the SMSU prairie on Oct. 9,

2012. Approximately nineteen percent of goldenrod plants in the prairie had one or more galls on their stem and there were significantly more gall beetle larva than gall fly larva. Our findings support evidence of gall beetle larva preying upon gall fly larva, and that galls are a prevalent issue affecting the health of goldenrod in the SMSU prairie.

24

Title: Insect Diversity in Southwest Minnesota

Presenter(s): Rachel Patnoe, Ashley Edwards & Jessica Peterson

Advisor: Dr. Betsy Desy, Biology

Abstract: Since insects account for a majority of organisms on earth, their diversity is of importance to all science disciplines. Diversity encompasses species richness and abundance, which varies based on environmental conditions. The purpose of this study was to determine insect diversity of twenty-three Minnesota counties using the SMSU insect collections, previously collected by students and faculty from 1969-2004. We organized data by county and calculated Shannon-Wiener indices. Lyon, Carver and Redwood counties were most diverse with index values of 2.0386, 1.9969, and 1.9091 respectively. Of insects collected, 55.5% of insects were captured in Lyon County. We determined the percentages of land use for certain counties in Minnesota and compared findings with insect diversity. Insect orders Hymenoptera, Coleoptera, and Lepidoptera accounted for 61.43% of the 1177 insects collected. We concluded that Lyon County was the most diverse, which is of importance to species management and agroecosystem stability.

25

Title: Density of Trees Species Along an Elevational Gradient in Camden State Park, Minnesota

Presenter(s): Seifemichael Kenea, Bina Lama & Kevin Okello

Advisor: Dr. Betsy Desy, Biology

Abstract: To evaluate change in density of tree species along an elevation, a population of tree species in south picnic area of Camden State Park was studied on September 9th 2012. The point-quarter method was used to acquire the data which was collected on September 9th 2012 and used in calculating the density. On lower elevation, the density of Sugar Maple was higher than those of Iron Wood and Bur Oak while on higher elevation, the density of Iron Wood was higher compared to those of Bur Oak and Sugar Maple. The results did show that there was change in density of tree species along the elevation. The change in tree

species density could be attributed to change in soils along the elevation. This study provides base line data for researching on change in density of tree species along the gradient in relation to change in soils.

26

Title: Effect of Habitat and Gall Presence on Shoot and Inflorescence Biomass of Canada Goldenrod (*Solidago canadensis*)

Presenter(s): Jenna Carlson, Roma kc & Anil Pandey

Advisor: Dr. Betsy Desy, Biology

Abstract: Canada goldenrod is a perennial plant that is commonly found in tall-grass prairies across North America (Pors and Werner, 1989). Hartnett and Abrahamson (1979) found that total aboveground biomass production and plant fitness of gall-bearing shoots was less than that of shoots without galls. Pokorny, *et al.*, (2010) found decomposition of organic matter in wetlands increased plant biomass. The purpose of our study was to determine the effects of habitat and galls on shoot and inflorescence biomass of goldenrod plants. The SMSU Wildlife Area restored prairie and transitional wetland both contain Canada goldenrod with and without galls. We tested 24 plants from each habitat (12 with galls and 12 without galls) for a total of 48 samples. We found that shoot biomass of prairie plants with galls was significantly greater than that of the transitional wetland plants with galls. There was no significant difference between inflorescence biomasses.

27

Title: Quantification of Chlorophyll Pigmentation in Burning Bush (*Euonymus alatus*) and Ginkgo Tree (*Ginkgo biloba*) over a Three-week Period in Fall 2012

Presenter(s): Leah Peck, Brittany Van Overbeke & John Craig

Advisor: Dr. Betsy Desy, Biology

Abstract: Chlorophyll is the most common pigment used in photosynthesis. During Fall, leaves lose chlorophyll resulting in red, yellow, and orange colors. Without chlorophyll a plant cannot create as much energy and enters a stage of dormancy for the winter. Therefore, a species that is able to retain chlorophyll longer in Fall may be more adapted to its environment. The purpose of our study was to determine if the ginkgo tree retained chlorophyll longer than the burning bush. We collected leaves from both species over a three week period and used thin-layer chromatography to separate the pigments. Spectrophotometry was used to obtain the absorbance of the chlorophyll pigments. Both

species showed a steady decline in the amount of chlorophyll present in their leaves, yet the ginkgo tree retained less chlorophyll throughout the experiment. Therefore, the burning bush may be more adapted than the ginkgo tree to the environment in southwestern Minnesota.

28

Title: Results of the 2012 Lyon County Exit Poll

Presenter(s): Samantha Pehrson & Azhar Adam

Advisor: Dr. David Sturrock, Political Science

Abstract: SMSU's Political Research Methods class conducted an exit poll of 553 Lyon County voters on Election Day 2012. The poll asked 20 questions and had a margin of error of +/- 4.07%.

Researchers ran crosstabulations to measure the influence of demographic and opinion questions on voters' choices for President, U.S. Senate, Minnesota Senate and House, the two state constitutional amendments and the Marshall sports center sales tax measure. Notable findings included:

- Frequency of religious attendance and one's opinion on abortion were much better predictors of Republican-Democratic voting choice than age, education or sex.

- The Marriage Amendment produced significant voting divisions with respect to political party, age, sex and marital status, and how one voted on the Voter I.D. amendment.

- The Marshall sports facility tax won strong approval from every group measured, including age, marital status, number of children living at home, political party and education level.

29

Title: PTSD Symptoms: Civilian vs. Military Personnel

Presenter(s): Justine Buchman

Advisor: Dr. Corey Butler, Psychology

Abstract: Post-traumatic stress disorder is a mental health disorder that effects many Americans both civilian and military personnel. Past research suggests that military personnel are at a higher chance of developing PTSD than their civilian counterparts. The purpose of this study is to see if there is a difference in symptoms of PTSD in civilians and military personnel along with a difference in military personnel deployed and non-deployed. This study had 49 participants who took a questionnaire; participants were obtained from Southwest Minnesota State University and a Minnesota National Guard Unit. Results showed a significance between civilians and military personnel with $t(47)=2.75$ and $p=.009$ and no significance between military personnel deployed and non-deployed with $t(24)=1.28$ and $p=.212$. Results

suggest that being in the military may play a role in having more signs and symptoms of PTSD.

30

Title: Density of Prairie Dock, an Invasive Native Species, in the SMSU Wildlife Area

Presenter(s): Neharika Upadhyaya, Mayra Montelongo & Chandan Gupta

Advisor: Dr. Betsy Desy, Biology

Abstract: Prairie dock is native to the prairies of Illinois. Mature plants are nearly indestructible as they are able to withstand drought, windstorms, and occasional wildfires. Prairie dock is not native to Minnesota prairies, however it is found in the SMSU Wildlife Area. Because it is not native to Minnesota, it is potentially disrupting the prairie ecosystem. The purpose of this study was to determine prairie dock density within a study area of 11,203m². From September through October 2012, we collected data on the density of prairie dock and its coverage area. In the study area, prairie dock density was 0.29, or about one-third of plants. The coverage area of prairie dock ranged from less than 1% to 50% due to uneven distributions of prairie dock plants in the study area. Further study would need to be done to consider various management techniques to control prairie dock dominance in Minnesota prairies.

31

Title: Anubis and the Art of the Dead

Presenter(s): Amy Johnson

Advisor: Dr. Pat Brace, Art History

Abstract: To the ancient Egyptians the afterlife was one of the most important journeys a person's soul would make. Following the cycle of the sun, the soul would have to be judged and pass through several gates before finally being united with the gods. Guardians of all shapes and sizes played important roles within this ritual process. This research study will present a look into the role of the jackal-headed god, Anubis, and his depictions in the ancient Egyptian funerary art. A look into the evolution of the god's role through history as well as the embalming process will be analyzed.

32

Title: Egyptian Cats: Mummies and Gods

Presenter(s): Tara Borman

Advisor: Dr. Pat Brace, Art History

Abstract: This study will provide the cultural outlook on cats through the ancient Egyptian forms of painting and sculpture. From catching cobras, to mummification, to worshipping the cat goddesses of justice, protection, and war, the Egyptian cat was one of the most highly revered animals to this ancient civilization.

33

Title: We're all a bit racist

Presenter(s): Ann Kopitzke

Advisor: Dr. Corey Butler, Psychology

Abstract: This research was a study done of SMSU students to determine the level of ethnocentric feelings that exist on our campus. For this research ethnocentric beliefs were defined as the view that one's race or culture is better than other races or cultures. The Study explored how gender, grade level, and age affect ethnocentric view. This study was done using an anonymous survey given to classes with students in a variety of grade levels. This is an important topic because racism still exists and young people are the chance to change and we need to know if experience and education makes a difference. The results will be discussed during the presentation.

34

Title: Diversity of Airborne Insects in the Prairie and Coniferous Forest of the SMSU Wildlife Area

Presenter(s): Sujeeta Maskey, Trista Hacker & James Oliver

Advisor: Dr. Betsy Desy, Biology

Abstract: Arthropods are the most diverse group of organisms on Earth, and the diversity of the insect populations plays a major role in developing a healthy ecosystem. The Southwest Minnesota State University Wildlife Area is a combination of multiple habitats including the prairie and coniferous forest. In order for these environments to ecologically thrive, there should be an adequate level of insect variety. The purpose of our study was to compare the airborne arthropod diversity of the restored prairie and coniferous forest habitats in the SMSU wildlife area. Our research group constructed yellow pan traps to capture flying insects in these regions. The results show that the restored prairie had a greater flying insect diversity than the coniferous forest habitat. These results align with previous studies that claim prairies have a higher insect diversity due to greater plant diversity (Wardhaugh *et al.*, 2012).

35

Title: Survivorship of Men and Women from Lyon County Minnesota during the Spanish Influenza Pandemic

Presenter(s): Diana Moe & Jessica Sheehan

Advisor: Dr. Betsy Desy, Biology

Abstract: The Spanish influenza was one of the most devastating pandemics in history which infected one-third of the world's population in 1918-19. The purpose of our study was to determine that this pandemic had a larger death toll than other

years in Lyon County, Minnesota. By conducting survivorship curves that included four cohorts, we obtain our results. The cohorts included female death in 1918-19, male death in 1918-19, female death not in 1918-19, and male death not 1918-19. Total sample group was 45,134 individuals. Graphs were conducted to show the individuals that died each year. The results showed that there was an increase in the number of individual death for the year 1918 in both male and female categories. The survivorship curve for male and female in 1918-19 revealed that individuals died at a younger age than the other years. The Spanish influenza did have an impact to Lyon County, MN.

36

Title: Change in Bird Density in Six Counties of Southwest Minnesota over a Ten Year Period

Presenter(s): Amy Dreessen, Gabrielle Dufour & Molly Manthe

Advisor: Dr. Betsy Desy, Biology

Abstract: Climate, land use, and urbanization have been changing for years affecting nature in many ways. Previous studies have shown that bird densities have been impacted due to these changes. The purpose of this study was to determine the differences in population distributions between migratory and non-migratory birds in a six-county region of southwest Minnesota. We collected data for fifteen bird species from the years 1992 to 2012 using the bird-watch database www.ebird.org. Overall, migratory patterns had no effect on bird densities, with the majority of birds having higher populations from April to September, no matter their migration status. We concluded that the individual migration patterns of the birds did not have a great impact on the population densities. These conclusions suggest that there are causes other than migration that decrease bird populations during the winter months.

Oral Session C- BA 102 History, Theatre, Psychology

37

Title: Superheroes through the Ages

Presenter(s): Christian Brown

Advisor: Dr. Tom Williford, History

Abstract: : Media portrayals have a huge impact on what society thinks of people, countries, or events. The creators and writers of comic books in the United States used their medium to present superheroes and villains who represented social and

political movements. With the presence of these characters, many people were inspired to feel a sense of nationalism, or to empathize with people fighting for equality and against oppression. There are three powerful examples of comic book series confronting war and social problems: Captain America challenging the enemies of the U.S. since the 1940s, the X-Men confronting the civil rights struggle in the 1960s, and the Green Lantern coming out as a gay man in the summer of 2012.

38

Title: Elizabethan Costume: Hamlet

Presenter(s): Anna Gwendolyn Eben

Advisor: Sheila Tabaka, Theatre

Abstract: Many people don't know about the true period costumes of the Elizabethan era. Some people don't even know the time period of what William Shakespeare stemmed from. The Elizabethan time period is a very changing time for theatre. It introduces the entertainment of theatre rather than rituals and lesson learning. I read a lot of research about the Elizabethan dress. I, also, did analysis for each character in the play *Hamlet*. I found out that there is a lot of contrast between each of the characters. Also, there are a lot of fine details that sets the traditional dress of the Elizabethan time period apart from the rest of the eras. I have made sketches of each character to present those fine details. In my presentation, I will be focusing the main characters: Hamlet, Ophelia, Claudius, Gertrude, and Polonius, and how their costume will be true to the Elizabethan era.

39

Title: Medieval Theatre: Miracle, Mystery, Morality

Presenter(s): Jessa Roberts

Advisor: Sheila Tabaka, Theatre

Abstract: Comparing and contrasting the three types of plays from the medieval time period; miracle, mystery, and morality. The three types of medieval plays, or the "m" plays were a very influential part of the Medieval Theatre era. During the medieval times, plays were being moved from being inside the church to being performed outside the church. Many plays were written in the vernacular, which is the common language of the people, rather than in Latin which only few people understood. This was an important step in Theatre's history. It made theatre more accessible to the common people.

40

Title: Romeo and Juliet: Influences in Entertainment

Presenter(s): Callie Frank

Advisor: Sheila Tabaka, Theatre

Abstract: Ever wonder how Shakespeare influenced our entertainment world today? This presentation focuses on the play *Romeo and Juliet*, written by William Shakespeare, and it focuses on how this play has transformed over the years. It also focuses on its popularity and how it became the target for business in the entertainment world. After researching the many forms that *Romeo and Juliet* has taken over the years, I discovered that the classic tragedy went from a script to a ballet, opera, a country song, and even several film adaptations. The age old story of two star-crossed lovers continues to take the entertainment world by storm as each generation is introduced to it. With each generation, brings a new perspective and a creative vision for Shakespeare's work.

41

Title: Greek & Roman Costumes

Presenter(s): Andrew O. Kompelien

Advisor: Sheila Tabaka, Theatre

Abstract: This presentation will be about the theatrical costumes of the Greek and Roman eras. This will include information about their materials and standard construction practices.

42

Title: The Cuban Revolution's Effect on Education and Ballet

Presenter(s): Krista Steen

Advisor: Dr. Tom Williford, History

Abstract: There are three sections to this paper, which include: education, ballet, and how the two movements are linked during the time of the Cuban Revolution. After researching the Revolution and its effect on the Cuban education system, it is shown that although the Cuban people as a whole are very educated there is very little opportunity post-graduation, which is what I have found to be the most interesting of all the research done. The Cuban people have put an emphasis on the arts and are very proud of the national Cuban ballet that has been able to thrive under the Castro brothers. Both have had, and in some ways still have a Russian influence. My methods of finding this information included using sources from the New York Times, various other books on Cuba, and the Internet has been a great source for discovering how the revolution affected the majority.

43

Title: History of the Greeks: Theatre & Thespis

Presenter(s): Ryan Risa

Advisor: Sheila Tabaka, Theatre

Abstract: Without Theatre, performers wouldn't be able to present the experience of real or imagined events before a live audience in a specific place. To help with my study, I mainly looked at books and other reference material. I am basically informing my readers on what Theatre was like in Greece and what methods or styles they used back then that we have never realized. This project will cover all elements of Greek Theatre, which is the oldest and earliest form of Theatre in Theatre History. The next thing my project will cover is the Acting, which happens to be my favorite thing pertaining to Theatre. I will discuss the significance and training that occurred during this time. The last thing my project will cover is Thespis, who was the most memorable actor of this period. By implementing these two topics, people will learn how Theatre has grown now from back then, and what elements or aspects we have kept because of Thespis and Greek Theatre.

44

Title: Emmeline Pankhurst and the Women's Social and Political Union: Scholarly Interpretations Through the Ages

Presenter(s): Emily Schoephoerster

Advisor: Dr. Tom Williford, History

Abstract: Emmeline Pankhurst was a controversial and influential figure in the British women's suffrage movement during the early 1900's and founded the militant suffrage group the Women's Social and Political Union (WSPU). Throughout the years, academics have expressed different opinions about Emmeline Pankhurst, the Women's Social and Political Union, the usefulness of their militant tactics and whether the suffragettes helped or harmed the women's enfranchisement cause. This study examines how historians, scholars and academics have treated the topics of Emmeline Pankhurst and the WSPU from the 1930s to today.

45

Title: The Beginning of Opera in the Italian Renaissance

Presenter(s): Lynn Lafky

Advisor: Sheila Tabaka, Theatre

Abstract:

46

Title: The Media's Darkest Hour: How Propaganda Killed Millions in World War II

Presenter(s): Kevin Riemenschneider

Advisor: Dr. Tom Williford, History

Abstract: During World War II, governments produced social propaganda in order to demonize their enemy. Several ethnicities were dishonored, ridiculed, and humiliated in the hopes of strengthening one's own nation. Government ministries introduced new forms of propaganda, which frequently relied on racist elements. Racism has been and continues to be a powerful tool for encouraging and inspiring war. During World War II this idea led to the massacre of millions of lives, as well as heinous acts carried out by the soldiers who fell victim to the psychological effects that their own government pushed on them.

47

Title: Edmund Burke and Thomas Paine

Presenter(s): Brian Bau

Advisor: Dr. Tom Williford, History

Abstract: The development of republican, democratic values is a compelling and expansive story. In the turbulent revolutionary period in both America and France in the latter part of the 18th century, Edmund Burke and Thomas Paine found the words necessary to carry the varied points which highlighted the liberal spectrum of their day. As events unfolded, these men would go from idealists espousing common concerns during the break of the colonies from England, to maintaining opposing views on the French Revolution. Their arguments have been influential in political thought, from their own time until the present, and the continued application of their ideas makes them both insightful and instructive to anyone considering the ideological impact of revolutionary times.

48

Title: A University and its Nickname: The History of the Fighting Sioux and the University of North Dakota

Presenter(s): Jason S. Weber

Advisor: Dr. Tom Williford, History

Abstract: This research paper is about the long and turbulent history of the University of North Dakota and its Fighting Sioux mascot. Racist imagery used by the educational system, supposedly as a noble gesture to a shared cultural past, has been challenged in recent decades. An investigation by the NCAA led to a ruling that any university using those images would be held accountable: suffering a loss of revenue as they

would be unable to host NCAA-sponsored events. The long legal battle over the use of the emblem at UND and the fight for dollars from one of the richest donations ever to a public university brought the issue to a climatic conclusion with the decision to abandon the mascot in the summer of 2012.

49

Title: Can your social profile help you get a date?

Presenter(s): Tyler Wagner

Advisor: Dr. Corey Butler, Psychology

Abstract: This study looks to find out what makes someone seem more appealing in their social profile by comparing intellectual qualities, social qualities, or athletic qualities. Previous research has shown that when looking for possible mates on social networking sites, men are more interested in physical beauty while woman are more interested in the content describing the person and their qualities. This study is looking to examine the preferences of 120 SMSU students by having them choose 1 of 2 identical twins to take on a date based off of the qualities written in their social profile emphasizing one of the three qualities above. Results were analyzed by comparing the three profiles with one another to see which quality was most appealing for male and female students of SMSU.

Abstracts

Poster Session A – Agronomy, Ag Business, Accounting, Biology, Chemistry, Environmental Science, Exercise Science, Sociology

1

Title: Increased Polyunsaturated Fatty Acid Supply to Central Nervous System Promotes Neurodevelopment and Neuroprotection

Presenter(s): Leah D. Riley

Advisor: Drs. Pam Sanders and Sandy Craner, Biology

Abstract: Neurological injuries and diseases affect millions of people every year, and their treatments and recoveries are often unpredictable or nonexistent. The presence of Omega-3 polyunsaturated fatty acids (PUFAs) in and around the central nervous system suggests they may play an important neurological role. However the functional contribution and mechanism of PUFAs to the nervous system is still unclear. An investigation by Gladman *et al.* (2012) showed that rats encoded with the fat-1 gene had increased endogenous levels of omega-3 PUFAs. After sciatic nerve injuries, the fat-1 rats had a significantly accelerated functional recovery compared to wild-type rats. Likewise, rats injected with omega-3 PUFAs after spinal cord hemisection and compression injuries had significantly greater positive effects on the functional recovery of locomotion and significantly more NeuN-labeled neurons one week after injury (King *et al.*, 2006). These studies indicate that omega-3 PUFA may improve recovery rates and promote neuroprotection.

2

Title: Apoptotic Effects of Lenalidomide on Cells with 5q Deletions in Myelodysplastic Syndromes

Presenter(s): Amy Dreessen

Advisor: Dr. Vaughn Gehle, Biology

Abstract: Myelodysplastic Syndromes (MDS) are diseases of the blood and bone marrow characterized by chromosomal abnormalities, including deletion of the long arm of chromosome five [del(5q)]. Current treatment methods target symptoms rather than targeting the underlying disease cause. Studies by Wei *et al.* (2009) and List

et al. (2006) were reviewed to demonstrate the effectiveness of lenalidomide in the treatment of MDS with del(5q). Wei *et al.* (2009) looked at the apoptotic responses of del(5q) cells to treatment with lenalidomide and assessed the expression levels of two genes in del(5q) and nondel(5q) cells. The data suggest that reduced expression of those two genes in del(5q) cells promotes sensitivity to lenalidomide. List *et al.* (2006) treated 148 patients with lenalidomide and found that lenalidomide reduced the need for blood transfusions in 112 (76%) del(5q) MDS patients. These studies suggest that lenalidomide may be the first effective MDS treatment.

3

Title: Effects of Cocoa Flavonols on Blood Pressure Through Vasodilation

Presenter(s): Stephanie Tulibaski

Advisor: Dr. Pam Sanders, Biology

Abstract: Hypertension (high blood pressure) causes about 50% of cardiovascular diseases worldwide. Many researchers are investigating the possible benefits of cocoa flavanols on hypertension. Here two studies are evaluated on the effects of cocoa flavanols on hypertension through endothelium-dependent vasodilation. Grassi *et al.* (2005) tested whether cocoa improves blood pressure and vasodilation in patients with essential hypertension. Results showed that chocolate rich in flavanoids decreased blood pressure while increasing vasodilation. Fisher *et al.* (2003) examined whether cocoa-induced vasodilation was due to the activation of nitric oxide synthase (NOS) by using NG-nitro-L-arginine methyl ester (L-NAME), an inhibitor of NOS. Results indicated that consumption of flavanol-rich cocoa increased blood flow, and L-NAME decreased the effect of cocoa, suggesting that vasodilation is caused by the activation of NOS. These studies support that one way cocoa reduces blood pressure is through the activation of NOS resulting in vasodilation.

4

Title: Comparing the Allelopathic Effects of Juglone on Tomato and Barley

Presenter(s): Alexis Peters, Jerry Bockman & Mark Christopherson

Advisor: Dr. Pam Sanders, Biology

Abstract: Allelopathy is the suppression of growth of a plant by a toxin released from a nearby plant of the same or another species. The purpose of this experiment was to determine the negative effects of Juglone, an allelopathic chemical found in the Black Walnut tree, on tomatoes and barley. We

hypothesized that when Juglone is added to the soil, the dry weight of the tomato plant will be more inhibited than barley. To test this we added walnut casings to the soil at a low and high concentration along with a control group. Each group contained 5 barley and 5 tomato plants. We measured the height of each plant 3 times a week and the dry weight was taken after 4 weeks. Juglone-treated tomatoes and barley were shorter than the control. Relative effects of Juglone on tomato and barley height will be discussed.

5

Title: Effect of Temperature and Salinity on Rate of Germination of Corn, Wheat, and Soybean Seeds

Presenter(s): ReNae Clark, Chryseis Tvedt, Barry Alderson & Lisa Panitzke

Advisor: Dr. Grace Armah-Ageman, Agronomy

Abstract: The germination of field crops is affected by both temperature and soil salinity. The purpose of this study was to determine the germination rates of two varieties of corn, wheat, and soybeans under different salinity and temperature levels. Corn, soybean and wheat were germinated under salinity levels of .07M, .1M, .2M and a control. Temperature levels for corn and soybean were 8, 24 and 31 °C while wheat was germinated at 3, 24 and 39 °C. The design was a completely randomized block design with two replications. Twelve seeds of each crop variety were placed on wet germination towels in petri dishes and the dishes placed in growth chambers. Germination counts were recorded daily for fourteen days. Preliminary results show that both species and varieties germinate best under lower salinities and in their respective temperature ranges.

6

Title: Comparison of Dietary Intakes Between Wheelchair and Able-Bodied Basketball Players

Presenter(s): Haley Gudim & Kaitlyn Norell

Advisor: Dr. Jeffery W. Bell, Exercise Science

Abstract: Individuals with physical disabilities such as spinal cord injuries, have greater rates of obesity, metabolic syndrome, and cardiovascular disease. Dietary habits may relate to greater disease rates and altered body composition. This study compared 1-day diets between wheelchair basketball (WB) and able-bodied basketball (BB) players. Participants completed a 1-day diet log and were instructed to complete the log on the same date. Nutritional analysis was performed using Nutritionist Pro software. In WB compared to BB total calories were lower (2526 ± 1196 vs. 4367 ± 2066 , $p < 0.05$) protein grams were lower (102.3 ± 68.6 vs. 169.9 ± 47.8 , $p < 0.05$), carbohydrate grams were lower

(287.6 ± 125.8 vs. 586.0 ± 287.9 , $p < 0.05$), and fat intake was similar (107.3 ± 76.2 vs. 154.9 ± 112.8 , $p = 0.33$). Dietary fat may play a role in greater rates of cardiovascular disease and obesity.

7

Title: Electrochemical Trace Analysis of Simazine

Presenter(s): Angela Wieland

Advisor: Dr. Jay Brown Chemistry

Abstract: Simazine is a common broad-leaf and annual grass herbicide used worldwide. It was deemed unsafe by the Environmental Protection Agency but has since acquired its Reregistration Eligibility Decision in 2006. Using Differential Pulse Voltammetry to analyze simazine, a 100mL stock solution of 2.0241×10^{-4} M is prepared with 0.0040g of simazine in methanol. A buffer solution is made with 1L of 0.1M Na_2SO_4 and H_2SO_4 is added drop wise until pH is 1.20. 10mL of the buffer is pipetted into a sample holder and 10 L of the simazine standard is added after each scan of DPV. After five scans, the detection limit is calculated to be 1.0771×10^{-7} M, or 0.0213ppm. The oral Median Lethal Dose of simazine is $> 5 \text{g kg}^{-1}$, or 5000ppm. The advantages of DPV to monitor contamination levels in water are (1) its low cost, (2) its simplicity, and (3) its effectiveness in detecting trace amounts of compound in solution.

8

Title: Allelopathic Effects of Thyme on Zinnias

Presenter(s): Alexis Walker, Chelsea Robinson & Theresa Ehnert

Advisor: Dr. Pam Sanders, Biology

Abstract: Allelopathic plants have chemicals that inhibit the growth and development of surrounding plants. Previous studies have shown that thyme has chemicals that cause inhibition of seed germination (Azizi, 2008) and growth of tomato plants (Skinner *et al.*, 2012). Our experiment tested the allelopathic effects of thyme on zinnias. Dried thyme was applied to the top of the soil of the zinnias with low, medium and high concentrations and a control group weekly for four weeks. They were measured weekly and dry weight was obtained after completion of the experiment. The results showed no statistical differences in the heights of the zinnias. This could mean that the concentrations were not effective, our method of application was not effective, the dried thyme did not have the necessary chemicals to inhibit growth, or that zinnias are not affected by the chemicals in thyme.

9

Title: Observation of Seasonal Changes in Market Street Mall Wetland, Marshall

Presenter(s): Sujeeta Maskey

Advisor: Dr. Emily Deaver, Environmental Science

Abstract: Wetlands are an important part of the ecosystem. They provide food and shelter to a variety of organisms and vegetation and their hydrology leads to a unique vegetation composition that can limit or enhance species richness. In this experiment, seasonal changes were observed in Market Street Mall Wetland, Marshall, for little over a month, fall 2012. Water quality tests were done every other week while observation were done each week. Temperature, alkalinity, nitrate, phosphate, oxygen, and pH level were measured using LaMotte kits. The most variation was seen in temperature (7°C 25°C) and dissolved oxygen (4 mg/L 16 mg/L) of water. Cattails and grasses were the dominant vegetation in this wetland. This wetland is classified as Type 5 Open Water Community.

10

Title: A Potential Molecular Mechanism for Asthma

Presenter(s): Molly Manthe

Advisor: Dr. Vaughn Gehle, Biology

Abstract: Asthma is an allergic respiratory disease in which bronchial tubes are inflamed, making breathing difficult. Currently, asthma affects 7.1 million children under the age of eighteen; new diagnoses continue to rise in numbers. Recent studies have shown that asthma may be caused by changes in gene expression in response to environmental pollutants. A candidate "asthma" gene is gamma interferon (IFN γ). Liu and colleagues (2008) found that exposure to diesel exhaust particles plus allergens in a mouse model caused methylation of the IFN γ promoter region. This methylation was correlated to an increase in IgE (the antibody involved in allergies). Brand and colleagues (2012), in a second mouse study, found increased methylation of IFN γ promoters caused a decrease in the expression of IFN γ , which was correlated to a rise in IgE, causing asthmatic symptoms. These papers together provide a molecular model for asthma.

11

Title: Effects and Prevention of Accumulation of Cadmium with Regard to Wet Age-Related Macular Degeneration

Presenter(s): Jenna Carlson

Advisor: Dr. Tony Greenfield, Biology

Abstract: Age-related macular degeneration (AMD) is a leading cause of blindness, affecting 30-50 million elderly individuals worldwide leading to

irreversible loss of central vision. Wet AMD is characterized by increased angiogenesis within the eye; choroidal neovascularization. Cadmium is a naturally occurring, toxic, heavy metal that is prevalent in first and secondhand cigarette smoke. Cadmium exposure may cause a variety of diseases including AMD by stimulating angiogenesis and eliciting stress responses within tissues. Kim, *et al.*, (2012), determined that cadmium exposure at low doses increased angiogenesis in HUVECs via the VEGF pathway. Manganese and zinc have been shown to compete for the same cellular transporter that cadmium utilizes. Satarug, *et al.*, (2008), demonstrated that cadmium induced HO-1 expression (which leads to increased angiogenesis) could be inhibited by co-exposure to manganese. Therefore, inhibiting entry of cadmium into the cell through the use of a less toxic metal may reduce angiogenesis and AMD.

12

Title: Seasonal Changes in a Transitional Wet Meadow-Shallow Marsh Wetland in Southwest Minnesota

Presenter(s): Drew Hultquist

Advisor: Dr. Emily Deaver, Environmental Science

Abstract: Wetlands are some of the most important ecosystems in the world, but have been reduced in numbers and size due to anthropogenic activity. Wetlands are a very diverse group and can look very different from one another. They are important for water quality improvement, controlling water flow, and the storage and release of many chemicals and nutrients. Some flora and fauna are also dependent on wetlands for survival. For this observational study, I observed the wetland on the Applebee's corner (intersection of MN Highways 23 & 19) from September to November 2012. Observations of vegetation, water quality, and human impacts were taken. Due to the drought, only two water quality observations were obtained. Plant life changed color and died off as time passed, and insects seen changed over time. Over the course of the study, most anthropogenic effects seen in this wetland were detrimental.

13

Title: Possible Mechanisms for Biological Control of the Emerald Ash Borer (*Agrilus planipennis*)

Presenter(s): Drew Hultquist

Advisor: Dr. Pam Sanders, Biology

Abstract: Since its discovery in the United States, the Emerald Ash Borer (EAB) has killed tens of millions of Ash trees and the cost of dealing with infestations is estimated to exceed \$1 billion per year. Chemical control is impractical; biological

control may be best strategy. Duan et al. (2010) studied mortality of EAB larvae by creating experimental cohorts, releasing two larval parasitoids *Tetrastichus planipennis* Yang and *Spathius agrili* Yang, and determining cause of death. Parasitism by both species was observed at low rates. Duan et al. (2012) studied establishment of *Oobius agrili* Zhang and Huang, an egg parasitoid of EAB introduced in 2007. The EAB egg-sentinel log (ESL) technique was used to determine field parasitism of EAB by *O. agrili*. Their findings indicated previously released *O. agrili* populations overwintered and were established. These studies show introduced EAB parasitoids are established but efficacy of parasitism is still low.

14

Title: Substrate Reduction Therapy using N-butyldeoxygalactonojirimycin Improves Overall Outcomes in Patients with Lysosomal Storage Diseases

Presenter(s): Leah Peck

Advisor: Dr. Sandra Craner, Biology

Abstract: Lysosomal storage diseases have high incidence rates in certain races (1 in 3900). There is no cure for these devastating diseases, though therapies have been proposed. Two studies conducted by Andersson *et al.*, (2004) and Baek *et al.*, (2008) evaluate the usefulness of N-Butyldeoxygalactonojirimycin (NB-DGJ) as a potential therapy for such diseases. Andersson *et al.*, (2004) observe vertical and horizontal tests as well as survival rates for diseased mice treated with NB-DGJ. They found that higher doses of NB-DGJ improve overall outcome without negative side effects. Baek *et al.*, (2008) study the effects of NB-DGJ on ganglioside and GM2 buildup in the brains of diseased mice using HPLC. Their results indicate that NB-DGJ reduces gangliosides and GM2 content in the diseased mice while allowing normal myelination to occur. These studies indicate that NB-DGJ may be an effective therapy for the treatment of lysosomal storage diseases.

15

Title: Factors that Contribute to the Long Term Sustainability of Coral Reefs

Presenter(s): Katelyne Alderson

Advisor: Dr. Betsy Desy, Biology

Abstract:

16

Title: Changes in a Redwood River Riparian Wetland from Late Summer to Fall 2012

Presenter(s): Joe Christensen

Advisor: Dr. Emily Deaver, Environmental Science

Abstract: Riparian wetlands are important to ecosystems because they mitigate floods, remove excess water from the area, and improve water quality. The riparian wetland next to the Redwood River and was monitored from September 11 to November 6, 2012. The water quality was measured every other week (nitrate, phosphate, alkalinity, pH, water temperature, dissolved oxygen, and water depth). The dissolved oxygen ranged from 5-5.3 mg/L while the nitrate levels started at 1 mg/L and ended at 3 mg/L. Both levels are inside the range critical for the classification of high water quality. Although the water quality was good human impact is still evident with trash present and gasoline spots in the water. High water quality is an important factor in determining the health of the ecosystem, yet should not be taken as the only determinant.

17

Title: The Evolution of the Doctorate of Physical Therapy Program

Presenter(s): Erin Erickson

Advisor: Dr. Jeffery W. Bell, Exercise Science

Abstract: The field of physical therapy has been continuously evolving over time, taking on many new advancements and technologies to better the quality of life. In 2000, the APTA took a big step forward in creating Vision 2020, removing physician referral requirements in order for a patient to receive treatment. PT's will now receive the proper education and experience through a DPT program, allowing them to earn their doctorate degree and provide more adequate care to their patients. This, however, is an extremely controversial move due to current therapists being required to return to school to earn their doctorate degree. When surveyed, four physical therapists replied indicating this advanced education requirement is the right step forward in order to provide better quality patient care. They also thought the transition to getting all physical therapists their doctorate has gone smoothly so far, and is expected to be in full effect by 2020.

18

Title: Copper Induced Olfactory Response and Recovery to Salmon Populations

Presenter(s): Jessica Sheehan

Advisor: Dr. Pam Sanders, Biology

Abstract: Salmon rely on their olfactory sense to detect food, predators and spawning grounds. Copper enters the water by runoff from vehicle brake

pads, algacides and fungicides. I evaluated two studies on salmon olfactory response to copper concentrations. Baldwin *et al* (2003) exposed salmon to five different copper concentrations then examined olfactory response which was detected by an electro-olfactogram (EOG). All copper concentrations impaired the olfactory nerves. Sandahl *et al* (2006) studied recovery time in salmon over 7 days after a 4 hour exposure to copper concentrations. EOG results showed that salmon olfaction recovered within one day to all copper concentrations. However, fluorescent dyes revealed neural activities were altered up to ten days after initial copper exposure. A wide array of copper concentrations can alter olfactory response of salmon. Even though recovery time is within one day, the impairment of salmon olfactory nerves can negatively impact survival in their natural environment.

19

Title: Effectiveness and Possible Mechanism of Alendronate (Fosamax) and Vitamin D3 on Osteoporosis

Presenter(s): Brittany Van Overbeke

Advisor: Dr. Tony Greenfield, Biology

Abstract: Osteoporosis is a common bone disease among postmenopausal women. It is characterized by an increased rate of bone turnover, reduction in bone mineral density (BMD), and an increased risk of fracture. Alendronate (ALN) is currently used as a treatment for osteoporosis. Shapses *et al.* (2011) studied the effect ALN and vitamin D had on fractional calcium absorption (FCA) compared to placebo. Results showed FCA significantly increased ($p < .001$) in the ALN + vitamin D treatment group. Increases in 1,25(OH)D3 and parathyroid hormone (PTH) and decreases in urinary calcium and bone-resorption markers were also observed in the ALN+vitamin D group. Bergstrom *et al.* (2000) showed that ALN functions by inhibiting farnesyl diphosphate synthase in the mevalonate pathway; ultimately inhibiting osteoclasts by affecting protein prenylation and lipid synthesis. These studies indicate that ALN is an effective treatment for osteoporosis in postmenopausal women.

20

Title: Treatment of Anemia in Myelodysplastic Syndromes (MDS) with Erythropoietin (EPO) and Granulocyte Colony Stimulating Factor (G-CSF)

Presenter(s): Ashley Edwards

Advisor: Drs. Pam Sanders and Sandy Craner, Biology

Abstract: Myelodysplastic syndromes (MDS) are a group of disorders caused by poorly formed or dysfunctional blood cells and 90% of these patients have anemia. Erythropoietin (EPO) and Granulocyte-Colony Stimulating Hormone (G-CSF) are commonly used to treat anemia and stimulate the production of red blood cells. Terpos *et al.* (2002) studied the advantage of a prolonged administration of EPO to achieve higher erythroid response rates. EPO was given subcutaneously at a dose of 150 U/kg three times weekly for 26 weeks. Results showed an overall erythroid response of 18.1% after 12 weeks, and 45.1% after 26 weeks. Hellstrom-Lindberg *et al.* (1998) combined EPO and G-CSF to increase response rates. Patients were treated with G-CSF and EPO for 16 weeks in arm A and 18 weeks in arm B. The overall erythroid response was 38%. These studies indicate that EPO and G-CSF are effective treatments for anemia in MDS patients.

21

Title: The Effects of Floralife and Silver Nitrate on Vase Life of the Common Rose

Presenter(s): Nicholas Dorman, Laura Ness, Gregory Pavak & Walker Schaar

Advisor: Dr. Pam Sanders, Biology

Abstract: Extended vase life in the floral industry is a significant part of product development. Silver nitrate, an ethylene blocker, and Floralife, a food source, are two solutions that can be used to extend vase life. Twenty roses were split into four test groups and placed in a growth chamber. Water uptake, bent neck, and leaf crispness of *Rosa berberifolia* were measured daily over a 15 day period to test whether a 20ppm silver nitrate solution, .01g/mL Floralife solution or a combined solution of both silver nitrate and Floralife would result in a longer, healthier vase life than a control group of distilled water. We observed that roses in the silver nitrate + Floralife solution had a prolonged vase life of 14.4 days which was 9.7% longer than the second leading treatment group of the commercial Floralife solution.

22

Title: Allelopathic Effects of Coffee (*Coffea arabica*) on Barley (*Hordeum vulgare*) Seed Germination and Dry Weight

Presenter(s): Kaitlyn Konz & Gillian Rolfe

Advisor: Dr. Pam Sanders, Biology

Abstract: Allelopathy occurs when certain compounds in a plant affects the growth of a different plant. It has been shown that coffee has a

negative allelopathic effect. Experimental group seedlings were exposed to concentrations of 1ppm, 2ppm, and 3ppm Hy-Vee brand coffee extract and were watered with the extract as needed with the control being watered with tap water. The barley seedlings were harvested after four weeks, placed in an oven to dry at 70 degrees C for three days. The dry weight of each seedling was determined. In a separate experiment, treatment groups of 5 seeds were placed in petri dishes and exposed to the same experimental conditions. The amount of time it takes for the first seed to sprout, number of seeds germinated per day, and the final number of sprouted seeds were recorded. The results of both experiments were statistically analyzed by comparing means \pm standard error.

23

Title: Treatment Options for Attention-Deficit/Hyperactivity Disorder (ADHD): Stimulant versus Non-Stimulant Medications

Presenter(s): David Williamson

Advisor: Dr. Pam Sanders, Biology

Abstract:

24

Title: Water Quality and Seasonal Changes in Marshall Flood Diversion Channel Wetland

Presenter(s): Gregory Pavek

Advisor: Dr. Emily Deaver, Environmental Science

Abstract: Wetlands moderate the effects of floods and act to improve water quality. The Redwood River diversion channel built around Marshall is important to the city of Marshall for the flood control that it offers. This diversion channel contains riparian wetlands or wetlands adjacent to and directly influenced by the Redwood River water diverted through the channel. From September 3 until November 5, 2012, a section of this diversion channel was studied. Water quality (dissolved oxygen, temperature, pH, nitrate, and phosphate) was measured along with visual observations of plants and animals at the site. Animal influences were very low for the first six weeks with some exceptions of fish and insects. Evidence of a beaver was seen in the area the last two weeks. As the time progressed water temperature decreased 12° C from 18 to 6 ° C and the pH levels slowly dropped. All other parameters stayed consistent.

25

Title: The Effects of Citric Acid on Vase Life of Cut Carnations

Presenter(s): Deewan Bajracharya, Bina Lama & Dawa Rai

Advisor: Dr. Pam Sanders, Biology

Abstract: The increasing demands of cut flowers being used in the lavish bouquets is consequently leading to a rapid incline need of the cut flower industries for freshly preserved and blooming cut flowers. However, a long-existed problem these industries are facing in choosing the most effective of chemical preservatives to expose these flowers to, which brings us to the purpose of our experiment; the vase life of a cut carnation inserted in different concentration of Citric Acid is substantially prolonged than the vase life of a cut carnation inserted in tap water. Five cut carnations were treated with 0, 0.5mM, 1mM and 1.5mM Citric Acid in their respectively marked vases. Under a room temperature of 23°C and photoperiod of 16 hours with light intensity of 1160lux maximum, 1020lux minimum, the solution in each jar was changed every other day and wilted every four days with a daily data collection which included flower quality and leaf crisping. Based on the experiment, we concluded that higher concentration of Citric Acid (1.5mM) was most effective in prolonging the vase life of the carnations.

26

Title: Effects of Muscular Strength Characteristics on Running Acceleration in Division 2 College Football Players

Presenter(s): Britt Wickett & Mark S. Chollmeyer

Advisor: Dr. Jeffery W. Bell, Exercise Science

Abstract: The purpose of this study is to determine whether the one repetition max (1RM) for hang-clean or squat exercise has an effect on running acceleration in division two college football players. These two lifts are the main concentration in the majority of strength training programs and we wanted to explore whether or not these lifts have any effect on running acceleration on the football field. In this experiment we tested the 1RM for hang clean, squat, ten yard dash, and vertical jump for 22 division two college football players. We found strong correlations for: squat max: 10yd (-.868), squat max: vertical jump (.885), hang clean: 10yd (-.796), hang clean: vertical jump (.758). Our hypothesis was supported in that there is a correlation between certain muscular strength characteristics and running acceleration.

27

Title: Academic Satisfaction of Wheelchair Athletes at SMSU

Presenter(s): Craig Popper

Advisor: Dr. Jeffery W. Bell, Exercise Science

Abstract: There may be specific evidence that individuals with physical disabilities have cognitive deficits that could hinder academic progress in college (Hedrick). It is unclear if this relationship exists in collegiate wheelchair athletes, too. This project was performed to determine the nature of the relationship between disability resources and academic satisfaction of wheelchair athletes on a small college campus. A survey comprised of eleven multiple choice questions centered on academic satisfaction was distributed to twelve SMSU wheelchair basketball athletes. Students were divided into groups based on receiving services (S) or not (NS). S and NS reported similar answers for study time, motivation, and the relative importance of achieving an undergraduate degree. However, NS but not S reported feeling substantially dissatisfied with both their academic discipline and with the rigors of classroom instruction. These results may prompt university disability resources to more specifically address this population's academic needs.

28

Title: Seasonal Changes in Good Medicine Wildlife Management Area Wetland Fall 2012

Presenter(s): Jared Wagner

Advisor: Dr. Emily Deaver, Environmental Science

Abstract: Wetlands perform numerous important functions such as filtering pollutants, absorbing flood waters, and acting as a nursery for animals. Because they are so important, wetlands must be monitored and protected. Seasonal changes of the Good Medicine Wildlife Management Area Wetland were documented by measuring water quality parameters (nitrate, phosphate, alkalinity, pH, temperature, dissolved oxygen and change in water depth) biweekly from September 6 to November 1, 2012. Temperature and water depth changed the most, both dropping as the study period advanced. Temperature fell from 23°C to 8°C and water depth dropped 14cm. Plant life went from being lush and green to brown as time progressed. Animal activity, especially that of migratory waterfowl, also decreased as the study went on from approximately 400 ducks present in September to only 9 present in November. These findings are expected in a healthy, stable wetland community.

29

Title: The Effect of Acute Moderate Exercise on the Stroop Effect

Presenter(s): Lisa Schroeder

Advisor: Dr. Jeffery W. Bell, Exercise Science

Abstract: This study was performed to determine performance on the Stroop cognition test before and

after exercise in 21 college-aged (20.62 ± 1.96 years) subjects. Each subject performed a color-word matching test before and after 10 minutes of moderate exercise. In trial 1 Congruent Average Response Time and trial 2 Congruent Average Response Time there was a significant difference of (61.62 ± 44.13 vs. 81.21 ± 47.71 seconds/100 trials, $p = .023$). In trial 1 Incongruent Average Response Time and trial 2 Incongruent Average Response Time there was a significant difference of (55.58 ± 37.78 vs. 71.55 ± 38.67 seconds/100 trials, $p = .022$). Trial 1 Congruent Correct or trial 2 Congruent Correct were not statistically different ($4.95 \pm .22$ vs. 5 ± 0.00 correct answers/5, $p = .329$). Trial 1 Incongruent Correct and trial 2 Incongruent Correct were not statistically different ($14.48 \pm .81$ vs. $14.57 \pm .68$ correct answers/ 15, $p = .629$). Ten minutes of moderate exercise worsened cognitive reaction time for congruent and incongruent trials.

30

Title: Effects of a Novel Stretching Method on Standing Broad Jump

Presenter(s): Gannon Moore & Adam Iversen

Advisor: Dr. Jeffery W. Bell, Exercise Science

Abstract: Recent research has suggested that static stretching does not cause the benefits or improvements, as previously believed. There may be better alternatives to ensure that an athlete or individual is prepared for competition, and such methods were explored in this study. Eight Division II football players performed three standing broad jumps after no warm up or stretching. They were then put through a static stretching routine and jumped three more times. In another session, subjects were taken through a novel stretching method, and performed three more trials. We found a significant difference between the best jump after a static stretch compared to after the novel stretch (2.51 ± 0.16 vs. 2.60 ± 0.21 meters, $p = 0.048$). We found that this novel stretching method may improve performance more than a static stretching routine.

31

Title: The Effects of Caffeine on the Rockport Walk Test

Presenter(s): Kasey Schreiber, Kim Rothmeier & Beth Ochs

Advisor: Dr. Jeffery W. Bell, Exercise Science

Abstract: We sought to determine how the consumption of caffeine prior to exercise would affect the results of the Rockport one-mile walk test. Nine subjects performed two trials on two separate days, one after consuming 46 milligrams of caffeine in diet coke and one after consuming caffeine-free diet coke. Subjects were unaware of which drink

they consumed on which day making this a single-blind, randomized crossover study. We found that there were no significant differences between post-exercise heart-rate between caffeine and placebo conditions (156.4 ± 14.9 vs. 152.4 ± 15.1 beats per minute, $p = 0.28$). Also, there were no significant differences between VO_2max scores for caffeine and placebo conditions (43.9 ± 6.1 vs. 44.0 ± 6.8 $\text{ml}\cdot\text{kg}^{-1}\cdot\text{min}^{-1}$, $p=.81$). This suggests that caffeine consumption prior to exercise would not impact the results of this commonly used test.

32

Title: Monitoring of Seasonal Changes in Marshall, Minnesota's Runnings Wetland

Presenter(s): Tony Ross

Advisor: Dr. Emily Deaver, Environmental Science
Abstract: Wetlands are an important part of our environment. They are a home to wildlife, help with erosion control, and purify groundwater. A wetland on the North side of the Runnings store in Marshall, MN was studied. Observations of plants and animals were made weekly and water qualities were measured bi-weekly (water depth, nitrate, phosphate, alkalinity, pH, temperature, and dissolved oxygen) from September 7 to November 1, 2012. Five tree species and several non-woody species of plants were recorded, as well as numerous butterfly, dragonfly, and frog species. Narrow-leaved cattails were the dominant plant species covering over 90% of the wetland. Pond and gilled snails and water bugs were also prevalent. It had between 5-11 inches of standing water throughout the study. As the water level increased or decreased, so did the dissolved oxygen. Water temperature fell and then remained constant, while pH continually dropped. This is a Type 3-Shallow Marsh.

33

Title: Post-Exercise Ankle Brachial Index in Spinal Cord Injured/Affected Individuals

Presenter(s): Eryn Hubbard & Joshua Watterson

Advisor: Dr. Jeffery W. Bell, Exercise Science

Abstract: It is suggested that the post-exercise ankle brachial index (ABI) may better detect peripheral arterial disease (PAD) than when performed at rest. We sought to determine in spinal cord injured/ affected individuals (SCI) versus able-bodied (AB) individuals the ABI after dynamic exercise. This case control, randomized cross-over design included 8 healthy college-aged students including 4 SCI (1 cerebral palsy, 2 spina bifida, and 1 spinal cord injury). In AB compared to SCI, there were no significant differences in resting heart-rate

(68.8 ± 16.7 vs. 65.0 ± 8.5 , $p = 0.70$), post-exercise heart-rate (109.3 ± 25.4 vs. 116.5 ± 22.6 , $p = 0.68$), pre-exercise ABI ($1.04 \pm .04$ vs. $0.95 \pm .10$, $p = .17$), and post-exercise ABI ($1.05 \pm .10$ vs. $0.97 \pm .11$, $p = .35$). The pre-exercise and post-exercise ABI did not differ significantly SCI and AB indicating that post-exercise ABI could be a useful tool in PAD detection in individuals with cardiovascular disease.

34

Title: Observations and Analysis of Independence Park Wetland

Presenter(s): John R. Callaghan

Advisor: Dr. Emily Deaver, Environmental Science

Abstract: Seasonal variations in water quality, vegetation, animal activity, and human impact were observed at Independence Park wetland in Marshall, MN. Observations were recorded every week September 6- November 1 with water quality (dissolved oxygen, nitrate, phosphate, pH, and water temperature) were tested every other week in the morning using a LaMotte test kit. Vegetation and animals were documented according to species and relative abundance in the wetland while human impact was documented pertaining to how it influenced the environment. Data shows that as weather and air temperature decreased throughout the season, nitrate, pH, and dissolved oxygen slightly increased and phosphate remained at a consistent level. Dominant vegetation was narrow leaved cattails with a few green ash tree and curly dock. It was determined that Independence Park wetland can be classified as a Type 4, Deep Marsh.

35

Title: Performance of Collegiate Wheelchair Basketball Athletes on the National Wheelchair Basketball Association Skills Test

Presenter(s): Ashley Vikander & Briann Gutzke

Advisor: Dr. Jeffery W. Bell, Exercise Science

Abstract: We sought to determine how the SMSU Wheelchair basketball team compared to the standardized scores of the National Wheelchair Basketball Association (NWBA) Skills Test in order to rank the participants on skills and abilities. The SMSU wheelchair basketball athletes were tested during the pre-season. In order to achieve this, we followed the NWBA testing guidelines for a series of five standardized skills tests: pass for accuracy (dominant and non-dominant), one minutes shot (dominant and non-dominant), spot shot, obstacle dribble and twenty meter sprint. Compared to the NWBA camp population mean, we found the mean T-scores for the five tests to be 50.14 ± 13.79 , 46.14

± 10.16 , 47.86 ± 14.44 , 46.86 ± 9.44 , 48.43 ± 9.96 , 64.00 ± 7.84 , and 48.57 ± 6.90 respectively. We concluded that, based on the t-score values, the SMSU athletes are below average on three out of five tests.

36

Title: Influence of Exercise on Mood State

Presenter(s): Manisha Bajracharya

Advisor: Dr. Jeffery W. Bell, Exercise Science

Abstract: Feelings describe the mood state of a person. Exercise has been linked with positive feelings. Physical activity research has promoted the relationships between exercise and mood alteration. This study used the Brief Moods Introspection Scale (BMIS) before and after 30 minutes of aerobic exercise. The BMIS uses pleasant, unpleasant, arousal, and calm dimensions (Russell) using 16-adjectives such as happy, caring, jittery, or grouchy. BMIS scores for the eight unpleasant emotions are subtracted from the eight pleasant emotions. Ten participants completed the experiment. There was a trend for worsened mood after exercise compared to before (4.6 ± 5.6 vs. 7.5 ± 2.1 , $p = 0.09$). This was related to worsened scores for the adjective tired (-3.1 ± 1.1 vs. -2.0 ± 1.3 , $p = 0.02$). The timing of the BMIS or intensity of exercise may affect a person's mood and should be the focus of future studies.

37

Title: Effects of Seasonal Change on the Riparian Wetland Adjacent to the SMSU Soccer Field

Presenter(s): Levi Windingstad

Advisor: Dr. Emily Deaver, Environmental Science

Abstract: Riparian wetlands are influenced by an adjacent stream and provide a highly productive environment for both obligate and facultative floral and faunal species. Seasonal changes affect the hydroperiod of the open system. From September 5th to November 8th 2012 LaMotte test kits were used to determine dissolved oxygen (ppm), nitrate (ppm), phosphate (ppm orthophosphate), alkalinity (ppm CaCO₃), and pH levels biweekly. The water depth and temperature, weather conditions, and observations of the floral and faunal diversity were recorded weekly. The results of both floral and faunal change were regressive with time and resulted in brown colored vegetation and decreased faunal observations. The range of alkalinity was 92 ppm CaCO₃ with a 168 ppm CaCO₃ maximum resulting from the inflow of water. The water level and dissolved oxygen were variable and dependent on precipitation. The water level displayed a maximum range of 21 cm. Regressive changes documented correlate with seasonal effects.

38

Title: Ratio of Hamstring/Quadriceps Strength of Collegiate Softball Players

Presenter(s): Jenny Johnson

Advisor: Dr. Jeffery W. Bell, Exercise Science

Abstract: The reliability of the Hamstring/Quadriceps (H/Q) ratio was performed twice in twelve collegiate softball players to determine whether the test itself was a reliable reference for risk of knee injury, specifically for females. Each subject performed single-leg, one-repetition leg extension and flexion following an adequate warm-up. The H/Q ratio was then determined for each leg and each trial. With a small sample size, a trend was noticed between Trial 1 and Trial 2 for the Right H/Q ratio ($r = .202$, $p = .120$). Trial 1 and 2 were significantly correlated for the Left H/Q ratio ($r = .514$, $p = .016$). There was sufficient evidence that the H/Q ratio was reliable, reaffirming its use as a reference to determine one's potential risk for knee injury.

39

Title: The Allelopathic Effect of Pine Extract on Zinnia Plants

Presenter(s): Neharika Upadhyaya & Alan Porter

Advisor: Dr. Pam Sanders, Biology

Abstract: Most of us have noticed in our backyard that there is very little vegetation growing under pine trees. It must be because of allelopathy which means the plant-plant interaction in which growth of competing plants is inhibited due to chemicals produced by a first plant. We assumed that the inhibition of growth occurs as concentration of extract of pine needles increases. Four groups with four plants each were watered with extracts of 1g/L, 2g/L, 3g/L and 4g/L respectively as the treatment groups and one group of four plants was the control which used plain water. Every two days, plants were watered and height was recorded over a period of four weeks. Data showed that the treatment groups with 3g/L and 4g/L showed greater inhibitory effects on height than lower concentration. Hypothesis was hence proved that the extracts of pine needles have inhibitory effects on height of Zinnia plant.

40

Title: Kicking Characteristics and Foot Acceleration in Two Different American Football Kicking Styles

Presenter(s): Lance Schuveiller

Advisor: Dr. Jeffery W. Bell, Exercise Science

Abstract: This study was performed to determine whether two kicking styles in American football had different foot acceleration characteristics. Twelve

college football athletes performed soccer style and straight-on kicks. Each athlete performed five kicks which were filmed. Off-line analysis was performed using Dartfish movement analysis software and acceleration of the leg was calculated. Skilled performers decelerated less prior to contact with the ball in both styles. Soccer style kicking generated greater acceleration compared to straight on (19.4767 ± 656 vs. -516.0958 ± 327 , $p = .024$). These results indicate different foot acceleration characteristics for each kicking style.

41

Title: Observations and Data Analysis of the AmericInn Wetland

Presenter(s): Hannah Beeler

Advisor: Dr. Emily Deaver, Environmental Science

Abstract: Wetlands are an important ecosystem because they provide a habitat for many different plants and animals and filter pollutants and nutrients. The AmericInn wetland, located off Highway 23 collects runoff from the highway and the hotel parking lot. Observations and water quality tests were completed over 9 weeks. The water was tested for dissolved oxygen, phosphate, alkalinity and nitrogen. Other observations included air and water temperature and water level change. The dominate vegetation was Narrow-leaved Cattail with Duckweed covering the water surface. Because of very low dissolved oxygen (often <3.0 mg/L), the number of living organisms was reduced. However, many snail shells were discovered suggesting higher levels of dissolved oxygen at some point in time. Although the AmericInn wetland wasn't observed as having many animals present, it still serves a purpose acting to filter storm water runoff.

42

Title: Effects of Orange, Lemon, and Grapefruit Peel as a Weed Inhibitor

Presenter(s): Bailey Andersen, Sabrina Espinoza & Sharon Carlson

Advisor: Dr. Pam Sanders, Biology

Abstract: Weed Control is an important aspect of crop survival. The production of weed inhibitors from natural bi-products can reduce waste cost and be environmentally friendly. Research on the Allelopathic effects of *Citrus junos* peel has shown a possible weed inhibition effect of citrus. In this study the inhibitory effect of three citrus peels (lemon, orange, and grapefruit) on height and dry weight of *Lolium perenne* were recorded. Twenty 4-week old plants were split into four groups and grown in SMSU's greenhouse. Groups received 100g of either peel slurry solution. Peel slurries were made to an 8% concentration. Plant height was recorded

over four weeks and dry weight on day 21. Results indicated that orange peel inhibited height by 19%. Orange peel may have possible allelopathic potential for weed inhibition. Further statistical analysis is needed to determine significance and dry weight comparisons.

43

Title: Agricultural Development in Sudan

Presenter(s): Gatluak Chuol

Advisor: Dr. Sangnyeol Jung, Ag Business Management

Abstract:

44

Title: The Effects of a Criminal Background on Employment

Presenter(s): Lauren Haase

Advisor: Dr. Vicky Brockman, Sociology

Abstract: I conducted a literature review to research how having a criminal background effects employment with a criminal history. I also looked at how companies conduct criminal background checks and how their policies match up to what the companies actions were. I compiled an extensive number of peer-reviewed journal articles. After reviewing the journal articles and compiling the results from the surveys and studies that the authors had conducted, the results of the literature review was that there is an effect on employment when potential employees have criminal histories. Overall the literature review concluded that there is an effect on employment and also that companies do have policies for background checks but the policies vary from company to company and there is a different use for background checks in different companies.

45

Title: Agriculture in Bangladesh

Presenter(s): Maureen Carmody, Samantha

Trebesch & Troy Robert Bockelmann

Advisor: Dr. Sangnyeol Jung, Ag Business Management

Abstract: Bangladesh is a small country in South Asia and has one of the highest population densities in the world. With a country that is slightly smaller than Iowa and with a total population of 161,083,804 people agriculture is an important aspect for economic development. Improving crop genetics to maximize production on land that has been over utilized will be a key factor in feeding the large and growing population. We will use basic economic models to calculate the expected increase in productivity and efficiency with the use of the new

technology in hybrid seeds. Increasing production of rice will help alleviate the problems of poverty and hunger and will also increase the incomes of the country.

46

Title: A Glimpse into Motion Pictures and How Personality Traits of Characters with Disabilities are Portrayed

Presenter(s): Bryan Creamer

Advisor: Dr. Kerry Livingston, Sociology

Abstract: The study deals with motion pictures and whether characters with a disability in a major role are seen in a negative or positive light. It examines personality traits in various films, focusing on the personality trait most frequently seen. Seven films from years 2000-2009, as well as six films from the year 2010 were analyzed. The two most common personality traits found were sadness and anger, both of which leave a negative impression on the viewer.

47

Title: Observation of Seasonal Changes in the SMSU Event Center Wetland

Presenter(s): Manisha Prajapati

Advisor: Dr. Emily Deaver, Environmental Science

Abstract:

48

Title: Is it beneficial to implant beef feeder cattle?

Presenter(s): Laramie Wynia

Advisor: Dr. Will Thomas, Accounting

Abstract: Many people assume that implanting a growth hormone in beef cattle affects the meat in a negative way, but beef producers only use implants so their cattle gain weight faster. The hormone in the implant is one that cattle produce naturally. To evaluate the effect of implants, I examined research from Agriculture College Extension Services and studies conducted by beef cattle raisers. Natural fed (non-implanted) and implanted cattle were compared during studies. The implanted cattle had more weight gain in the same time with just about the same quality grade as natural-fed beef. This leads to the conclusion that implants affect growth positively with no negative impact on the cattle or on their meat.

49

Title: Frequent Flyer Miles Taxation

Presenter(s): Christy Van Dyke

Advisor: Dr. Will Thomas, Accounting

Abstract: American travelers currently have about 10 trillion outstanding frequent flyer miles, which in

many ways look like taxable income. Frequent flyer miles have only been subject to income tax pending if they result from a rebate, promotion, or prize. One estimate suggests that taxing these miles might generate as much as \$75 billion in tax revenue. I have examined current laws and regulations in this area as well as a recent action by Citibank to report outstanding miles to the IRS as income. This project considers whether frequent flyer miles qualify as income. I have concluded that miles should be taxed because they are a source of income, but the current tracking system for miles is inadequate for this purpose

50

Title: Financial Benefits for the United States to Switch to the Metric System

Presenter(s): Tyler Templer

Advisor: Dr. Will Thomas, Accounting

Abstract: There has been significant resistance in the U.S. towards fully converting to the metric system. Many companies in various industries have already benefited from switching to the metric system. I searched extensively to find reliable articles online as well as in the campus library to find additional relevant data. The most significant information I found were by experts in manufacturing, science, and economics. During my research I was surprised by the economic costs we endure in the U.S. by not entirely switching to the metric system. The benefits of switching exceed the costs now in the present but more importantly in the future. Preparing and educating our future generations to compete globally demands that the U.S. fully implement the metric system of measurement.

51

Title: The Pros and Cons of Owning a Small Wind Generator

Presenter(s): Greg Van Ruler

Advisor: Dr. Will Thomas, Accounting

Abstract: The "Green Movement" in the United States represents responsible care of the environment and allows us to enjoy a clean environment now and in future generations. Wind power has long had a role in providing a "Green" alternative power to fossil fuels in the United States and other countries. There is much polarization of individuals, investors, and political figures to promote or oppose wind energy. This project summarizes wind powers history and the pros, cons, and neutral aspects of wind power for energy production. Evaluating the cost per kilowatt hour of energy that is produced is necessary to show sustainability. Next is a review of points and

Counterpoints of some controversial aspects of wind power production. Personal perspectives on utility and feasibility of small wind turbine projects conclude. Wind power from small wind turbines is cost-effective, renewable, environmentally friendly energy we should continue to invest in.

Poster Session B – Interdisciplinary Studies, Psychology

52

Title: Women in Crime

Presenter(s): Jordan DeMarre, Haley Jacobsen & Jaclyn Wallace

Advisor: Dr. BC Franson, Justice Administration & Dr. Maureen Sander-Staudt, Philosophy

Abstract: Women in history have been highly disregarded in many topics. Specifically crime, women are looked at as the victims and not the criminals. This poster presentation will emphasize the increase in women involvement in crimes as well as present in-depth research on why women are committing criminal acts. The questions of “Who is a criminal?” and “What is considered a crime?” will be asked over again. The conclusion of this extensive research will show light onto the overshadowed topic of women in crime.

53

Title: Women’s Colleges vs Co-ed Institutions

Presenter(s): Brianna Brush, Stephanie Vorvick & Whitney Sandven

Advisor: Dr. BC Franson, Justice Administration & Dr. Maureen Sander-Staudt, Philosophy

Abstract: Women are less likely than men to enter fields that are important to economic and social development. Single-sex institutions for women provide a possible solution. These single-sex institutions, when compared to co-ed institutions, broaden access to academic fields in which women are underrepresented. Women who want to study STEM (science, technology, engineering, mathematics) fields often face harassment and discrimination from male peers and faculty creating a climate that does not support a woman’s success. Women’s institutions protect while they empower women. This informational poster is an exploration of single-sex colleges and their role in changing women’s educational paths.

54

Title: Women, Their Bodies and Violence

Presenter(s): Tramel Barnes, Kris Penick, Sandra Castillo & Cynthia Cordova

Advisor: Dr. BC Franson, Justice Administration & Dr. Maureen Sander-Staudt, Philosophy

Abstract: Through the years women have been submitted to violence socially, mentally, and physically. This is an issue that still affects our society even with the progress that has been made. In this research presentation we will address violence against women through domestic battery, violent households, rape, sex assault, pornography, as well as within media representations. It is our belief that these issues can be minimized through awareness and prevention. Our purpose is to provide information about the resources available to have a future without violence.

55

Title: Paid and Unpaid Work

Presenter(s): Lois Sauck & Chris Lascotte

Advisor: Dr. BC Franson, Justice Administration & Dr. Maureen Sander-Staudt, Philosophy

Abstract:

56

Title: Legalizing Prostitution

Presenter(s): Dawn Gartner, Leann Heimer & Alejandro Dominquez

Advisor: Dr. BC Franson, Justice Administration & Dr. Maureen Sander-Staudt, Philosophy

Abstract: Statistics show the average age entering prostitution is 14 and 79 percent of prostitutes are still being victimized. The case book Feminist Jurisprudence states, “forced prostitution cannot be addressed until voluntary prostitution is legitimate.” A review of literature was done through scholarly articles, text books, state studies, case books, and media regarding the legalization of prostitution. The research indicates both positive and negative consequences. Results indicate that legalization of prostitution is ineffective at lowering victimization rates. The evidence suggests victimization of prostitutes appears to be increasing.

57

Title: Women and Poverty

Presenter(s): Naomi Scheche, Devin Terry & Kayla Kruger

Advisor: Dr. BC Franson, Justice Administration & Dr. Maureen Sander-Staudt, Philosophy

Abstract: Women have made major gains in employment, education, and income in the last half-century but; there is still a long way to go in this

journey, to equality. This is a problem because; women's wages affect more than just her. It affects her, her entire family, and society as a whole. Single mothers seems to be the ones that are most affected by poverty, because of the wage gap and they are the soul providers that are walking the line between working to make the money and trying to provide care for her child. The goal of the research was to distinguish the interpretations of wages by gender and education, and also to raise awareness among the Southwest Minnesota State University students. Our hypothesis is that many students are unaware of the inequality of wages among the working man and woman.

58

Title: The Law Behind Women as Property

Presenter(s): Morgan Wee, Jennifer Cox, Ashley Peterson & Veronica Esquivel

Advisor: Dr. BC Franson, Justice Administration & Dr. Maureen Sander-Staudt, Philosophy

Abstract: For a society to know which direction it ought to move forward, one must know how you came to be where you are. For this topic we will cover old "dumb" laws, MWPA, and William Blackstone. The idea of women as property has been a long standing patriarchal notion that underlies a lot of the challenges that women still face today. The things that have been tried in the past have yet to bring women closer to true equality. Is it the law that began the idea of women as property and society followed, or vice versa? So where then does the solution lie? We intend to show that a balance is required between social standards and the law. Without that balance, problems such as the wage gap, "marital bondage," and unrealistic mothering standards will remain a plight, we will pass to our daughters and granddaughters alike.

59

Title: RateMyProfessor.com Guide to Quality and Easiness

Presenter(s): Brianna Brush

Advisor: Dr. Corey Butler, Psychology

Abstract: Student evaluations have become easily accessible through sites such as RateMyProfessors.com. This information allows light to be cast upon whether gender, perceived easiness and attractiveness influence the quality ratings of professors. Data obtained from 80 professors within Southwest Minnesota State University reveals relationships between Overall Quality and Easiness, as well as a relationship between receiving an attractiveness rating and

Overall Quality. However, there was no indication of a relationship between gender and the other variables aforementioned. The analyses show that if an instructor is perceived as easy or hot then the quality ratings will tend to be higher. As the world becomes more connected to online resources it would be an easy transition to use sites like RateMyProfessors.com for evaluations. There is valuable information to be gained from student responses of professors that could result in positive changes made within the higher educational system.

60

Title: How Drinking is Associated to Grades

Presenter(s): Alex Gleason & Shyranda Hornick

Advisor: Dr. Corey Butler, Psychology

Abstract: Too much alcohol can cause bad grades. Our study is a correlation between drinking and grades from Southwest Minnesota State University students aged 18-55, both male and female. This correlation study will have roughly 80 participants filling out a questionnaire regarding grade point average, number of times each participant skips class weekly, how much the participant drinks each week, and also there is a question about how many hours a week the participant studies. Our findings are still being analyzed.

61

Title: The Power of Education in the War Against Mental Illness Stigma

Presenter(s): Shannon Marholtz & Ashley Bublitz

Advisor: Dr. Corey Butler, Psychology

Abstract: Society severely stigmatizes mental illnesses. One can look to almost any media outlet and see numerous examples of mental illnesses portrayed in a negative light. This study focuses on the effect of higher education on the stigmatization of mental illnesses. More specifically, if more education will affect the way that psychology majors view mental illnesses. The participants in this study are college students of varying ages and majors. This study used an adaption of the RIBS survey that was passed out in multiple classes. The control group of the study are non-psychology majors. Our findings will be discussed at the presentation. We expect our findings to show that the further a student gets into their psychology studies, the less likely they are to have negative stereotypes of those with mental illnesses.

62

Title: Effectiveness of Makeup on a Waitress

Presenter(s): Megan Wilgenbusch

Advisor: Dr. Corey Butler, Psychology

Abstract: I'm a server at Applebee's and chose to do my experiment on how effective wearing makeup to work is. In all of the studies I've researched, I found that makeup did affect the servers tip. A server who wears makeup tends to get a much better tip than when they do not wear makeup. I decided to go to work both while wearing makeup and then again with no makeup on. I did this on the same night of the week and wore the same clothes along with my hair the same way so that there would be no confounding variables. I found that my tip percentage was higher on nights that makeup was worn. When women wear makeup we tend to be more outgoing and friendly than when we don't have any makeup on, which could be one reason why the tip percentage is higher with makeup on.

63

Title: The Effects of a Student/Teacher Sexual Relationship

Presenter(s): Kimberley Einck

Advisor: Dr. Corey Butler, Psychology

Abstract: This study is an investigation of inappropriate student – teacher relationships. Actual cases were reviewed, such as the well-known case of Mary Kay Letourneau. Additionally, a questionnaire was given to a sample of 47 SMSU students to examine their perceptions of inappropriate behaviors. The first hypothesis was that male teachers would be judged more harshly than female teachers in this type of situation. The second hypothesis was that female students would be judged as suffering from more negative consequences. The results will be presented at the conference.

64

Title: Social Facilitation: The Effect of Competition

Presenter(s): Cadie Meyer & Kristi Eisenbraun

Advisor: Dr. Corey Butler, Psychology

Abstract: This experiment looks at social facilitation and competition. Social facilitation is the tendency for people to do better on simple tasks when in the presence of other people. It is hypothesized that when two people are competing against each other they will complete a 24 piece puzzle faster than if they put it together by themselves. Those who participated in this study were students, staff, and faculty of Southwest Minnesota State University. A total of 61 individuals between the ages of 18-56 participated. This research is experimental. We expect to see a negative correlation between the time and the presence of competition. Our results will be discussed.

65

Title: The Relation Between Personality, Gender, and Classroom Seat Selection

Presenter(s): Rachel Trueblood

Advisor: Dr. Corey Butler, Psychology

Abstract: Previous research has shown correlations between seating choice with personality traits and gender. The current correlational study looks into relationships between the personality traits of extroversion, agreeableness, conscientiousness, neuroticism, and openness to experience with the location (front or back) in which the student chooses to sit. 52 SMSU students in two different classrooms filled out a 50 statement personality test as well as distinguishing where their desk is located. I expected the results to show a positive correlation between students that sit in the front with higher levels of extroversion, conscientiousness, and openness to experience. The hypotheses were not confirmed, however there is a significant relationship between neuroticism and seat choice.

66

Title: Do Pistols Equal Peace?

Presenter(s): Adam Ogdahl

Advisor: Dr. Corey Butler, Psychology

Abstract: With the prevalence of violent crime depicted in media images across the nation, more and more citizens are buying firearms for personal protection more than ever before. And of these citizens a fraction are opting to undergo the training, federal background checks, and application process to legally carry a concealed firearm. New laws, being advocated by moderate and growing group of anti-firearm citizens, draw much attention in a nation where it is one's constitutional right to "bear arms." With personal freedoms potentially in jeopardy, what are the responses and opinions of the young adults in a rural setting? Do legally armed citizens have an impact on violent crime? Does the number of firearms in circulation cause a sense of nervousness or discomfort in regards to safety? And do those who advocate for anti-firearm laws have any amount of firearm knowledge? Data will be gathered using a convenience sample survey of SMSU students. Results will be analyzed, displayed, and discussed during the Undergraduate Research Conference.

67

Title: Does Age Affect Level of Conformity?

Presenter(s): Catherine Barstow

Advisor: Dr. Corey Butler, Psychology

Abstract:

68

Title: Battle of the Classes: Who Drinks More

Presenter(s): Rebecca Holmblad

Advisor: Dr. Corey Butler, Psychology

Abstract: This is a correlational study that examines year in school, self-esteem, and drinking among college students. The prediction is that freshmen will drink the most due to having low self-esteem while the upperclassmen will have a higher self-esteem and drink less. 60 SMSU students were surveyed from various classrooms, the student center, and Java City. The results are still in process and will be discussed at the conference.

69

Title: Gender and Age Differences in College Students' Attitudes Toward the Young and Old

Presenter(s): Michelle Hoek

Advisor: Dr. Corey Butler, Psychology

Abstract: The phrase "graying of America" refers to the expected rise in the population of older adults in the United States (Hoyer, 2009). Previous research has shown younger adults to hold more negative attitudes toward the elderly (Hoyer, 2009). This is problematic since "the number of adults over age 65 is expected to double in the next 40 years" (Hoyer, 2009). This research examines age and gender differences in college students' attitudes toward younger and older adults. About 85 college students at Southwest Minnesota State University were shown one picture of either an elderly male or female or a young male or female. Information about students' attitudes was gathered using K.G. Polizzi's refined version of Rosencrantz and McNevin's Aging Semantic Differential scale. Results did not indicate a significant difference in students' attitudes toward younger and older adults, but other significant differences were found when the data was further analyzed.

70

Title: Prayer, Attendance and Religious Satisfaction

Presenter(s): Justin Nielsen

Advisor: Dr. Corey Butler, Psychology

Abstract: People who are involved in social activities such as a sports league or book club have a higher life satisfaction than people who are isolated. There is a connection between one's happiness and social activities. Is there a connection between religious involvement and religious satisfaction? I believe people who pray regularly and attend religious meetings more often have a higher satisfaction with their faith. There is a positive correlation between prayer, intimacy with God, religious meetings, and satisfaction of faith. I created a survey asking participants twenty questions

regarding their prayer life, religious meeting attendance, faith satisfaction and life satisfaction. I then compared the relationships between the variables to see if there are trends. I believe these findings are beneficial because this will help measure why people attend services and how leadership can help minister to their congregation.

71

Title: Cross-Racial Face Recognition

Presenter(s): Brianna Brush, Samuel Bonsu & Shannon Mahoney

Advisor: Dr. Scott Peterson, Psychology

Abstract: Most cases of mistaken identity can be linked to differences of race between suspect and victim. For this reason we recruited participants of four different races to test each group and individual's accuracy of recognizing suspects of their own and other races. Each participant was shown a photo of a suspect for 5 seconds then a second photo of another suspect of a different race, again for 5 seconds...until the participant has viewed each of four different suspects. The participant was then asked to locate positions on a map, from which each of the hypothetical crimes were committed. Finally, the participant was asked to pick the familiar suspect out of a lineup of 5 other same race distractor individuals. This final step was done separately for each race. We predicted that accuracy would be higher when participants evaluate suspects of their own race as opposed to the other races.

72

Title: Effective Learning Strategies for Test Cramming

Presenter(s): Justin Nielsen & Gena Stevens

Advisor: Dr. Scott Peterson, Psychology

Abstract: Most students are involved in multiple activities in addition to their educational studies. Cramming becomes an essential part for the preparation for an exam. Many students will stay up all night reading and rereading the text, but there are other strategies that are more effective. The purpose of this study was to evaluate the effectiveness of various study techniques. We predict that a coding strategy would be most effective for cramming because it results in deeper processing, using elaboration rehearsal. We provided participants with a scientific article about the formation of hail and instructed the participants to read the paragraph according to different learning strategies. We then tested their knowledge with a multiple choice quiz. We hope that the outcome of this study will help students become better at cramming for tests.

73

Title: Effects of Instructions to Pay Attention on the Monkey Business Illusion

Presenter(s): Kristina Trembley & Shyranda Hornick

Advisor: Dr. Scott Peterson, Psychology

Abstract: Our research is based on the Monkey Business Illusion, a YouTube video clip that shows people passing a basketball while various changes occur in the scene. Previous research on this illusion has shown that people tend to miss obvious changes because their attention is focused on the basketball passing. In our experiment, some participants viewing the video were told to focus only on the passes of players dressed in white, while others were told to pay attention to all changes that occur in the video. After viewing the video, participants completed a questionnaire in which they reported on any changes that they noticed. Our hypothesis was that participants given instructions to pay attention to all changes would notice 25% more changes than those who were told to focus only on the passes from players dressed in white.

74

Title: Eyewitness Testimony: Can it be Trusted?

Presenter(s): Justine Buchman & Kayla Kruger

Advisor: Dr. Scott Peterson, Psychology

Abstract: Eyewitness memory plays an important role in our court system, yet memory is fallible. Past research shows that memory is not like a video tape; it can be changed or lost. The purposes of this study are to see if immediate recall is very accurate, if eyewitnesses will lose some of their memory over time, if eyewitnesses' memory will change over time, and whether confidence is a good predictor of accuracy. Twenty-two participants from Southwest Minnesota State University were asked to view a short video of a mugging and then asked to recall the events and suspect's description. All participants performed an immediate and delayed recall questionnaire. Results did show that immediate recall is not all that accurate with a mean percentage of 64.6%. Results showed no significance difference between immediate recall and delayed recall with $t(21)=-.283$ and $p=.780$, there was also no significant correlation between confidence and accuracy

75

Title: Recognizing Your Name in a Word Scramble

Presenter(s): Tyler Wagner & Natasha Drackley

Advisor: Dr. Scott Peterson, Psychology

Abstract: Former research suggests that reading becomes easy and automatic by being able to unconsciously processing the physical features of the word along with the placement of syllables and how familiar people are with the word. The purpose

of our study is to examine whether people can easily recognize their name when it is scrambled compared to the name of a random person. We drew names randomly from the SMSU directory to use as control names. Participants were students from SMSU and they were timed to see how quick they could unscramble their name compared to one of our control names with the same amount of letters. We predicted that participants would recognize and unscramble their own name faster than the control name. Results were analyzed to look for differences in unscramble time between the participants own name and the random name, a counter balance effect, and the effect of the length of the name on unscramble time.

76

Title: Everyday Occurrences and Memory

Presenter(s): Melissa Pannell & Britton Dyer

Advisor: Dr. Scott Peterson, Psychology

Abstract: This study was done to discover whether or not people remember a scene or event better if we are they are able to create emotional distinctiveness during said occurrence. Every day people fall into routines that keep us from paying close attention to our surroundings. This experiment attempted to create a "flashbulb memory" by bringing out a distinct emotion during the presentation of a series of photographs. There were two groups of participants, the control and experimental. Both the control and experimental groups viewed the same series of pictures. During the experimental group's presentation they heard a loud and disturbing sound intended to create an emotion reaction (emotional distinctiveness) and in turn a flashbulb memory. It was hypothesized that the experimental group would be more likely to remember viewing the target image and be able to provide more details about the target image than the control group.

77

Title: How Much Do We Miss When We Don't Pay Attention?

Presenter(s): Sara Raddatz & Catherine Barstow

Advisor: Dr. Scott Peterson, Psychology

Abstract: The purpose of our study was to examine how well students at SMSU think memory works compared to how it actually works. Our experiment required participants to view a picture of a scene and compare it to a second picture of a similar scene with five changes, five additions, and five subtractions of objects. Participants were asked to identify all the changes they noticed between the two pictures and also to rate their confidence in their own memory before beginning the experiment. We

hypothesized that the study would reveal a significant negative correlation between how well people believe their memories work and how well they actually work. We believe that memory is much worse than people think and that they will be surprised to find out how many obvious differences they actually miss.

78

Title: The Effects of Detail Orientation and Gender on Change Blindness

Presenter(s): Stephanie Vorvick & Kayli Timm

Advisor: Dr. Scott Peterson, Psychology

Abstract: The present study examines whether the relationship between change blindness, detail orientation, and gender is moderated by the extent to which individuals are inclined to notice a change of experimenters during an experiment. Change blindness is a phenomenon where people do not detect a visual change. On the basis of the literature, it was hypothesized that, due to change blindness, our participants would not notice a change in experimenters 50% of the time. It was also hypothesized that females who score higher on the conscientious scale would more likely notice the change than males or females who scored lower on the conscientious scale. We also expected that women, overall, would score higher on the conscientious scale than men. The hypotheses were tested on a sample of students on the SMSU campus.

79

Title: Effects of Technology on Child Development

Presenter(s): Corrie Weizel & Tony Ross

Advisor: Dr. Scott Peterson, Psychology

Abstract: Technology has become a major tool in everyday human activity. Children are being exposed to technology at younger ages than ever before. The debate concerning whether it does more harm or good has been going on for some time and still seems that the results have been mixed. The purpose of this research was to evaluate both the positive and negative effects of technology on the development of children. We found more evidence of negative outcomes in children. For example, the overuse of technology is associated with poor academic achievement, sleep impairment, and attention difficulties. The particular type of technology and how often it is used is a major factor in determining the effects it has on children. Children are our future, so it is important that we thoroughly research how technology can affect them and make the right decision about whether we should be giving or limiting its use.

80

Title: Bullying Amongst Elementary-Aged Children: An Analysis from Two Perspectives

Presenter(s): Rachel Patnoe, Haley Gudim & Christopher Dehncke

Advisor: Dr. Scott Peterson, Psychology

Abstract: Bullying in elementary schools has become a world-wide phenomenon which has recently become a major concern for school officials, parents, and psychologists. Professionals in this field are starting to compile evidence on the negative short- and long-term effects that bullying has on the development of young children. The purpose of our research was to analyze studies done over the past thirty-five years to determine the developmental effects that bullying has on elementary-aged children. We evaluated this topic from two perspectives: 1) the child being bullied, and 2) the child instigating the bullying. We discovered that there are many behavioral and personality traits that often predict children's roles in bully victimization situations. Longitudinal studies have shown negative long-term psychological effects of bullying such as depression, emotional disorders, and delinquency. Our research is important for increasing awareness and promoting prevention of bully victimization in elementary schools.

81

Title: What is the Relationship Between Suicide and Gender?

Presenter(s): Bethany Kruggel

Advisor: Dr. Scott Peterson, Psychology

Abstract: All over the world, suicides are being committed by people of all ages and gender. Don't you ever wonder what the differences in gender are when it comes to suicide? Many researchers have found that typically men commit suicide more than women but women attempt suicide more. Why is this? My research consists of literature review of other studies that have been done about gender differences in suicide. So if you want to learn more about why men commit suicide more than women, and that the methods they use play a role, then this is the poster to look at!

**Poster Session C –
Accounting, Computer Science,
History, Sociology, Psychology**

82

Title: Forensic Science: The History of A Science

Presenter(s): Garrett Albright

Advisor: Dr. Tom Williford, History

Abstract: If you have watched TV then you have seen or heard of shows like *CSI*, *Law and Order*, and *Without A Trace*. All of these shows and many more like them use forensic science to solve crimes, but, is this the same forensic science used in real life to solve crimes? In order to answer this question I have studied these TV shows as well as forensic science books, forensic science websites, and interviews of prominent people in the field. These TV shows use forensic science that does exist in real life as well as some technologies that do not yet exist. This leads to what is known as the “CSI effect” or the demand for more forensic evidence and advanced technology in forensic science. This is why forensic science is so interesting, because it’s always changing in real life and in the TV shows we watch.

83

Title: Plague of the Black Dog

Presenter(s): Ann Kopitzke

Advisor: Dr. Tom Williford, History

Abstract: British Prime Minister Winston Churchill’s mental health—he was bipolar—affected various aspects of his life, including his ability to lead a nation during World War Two. Despite his affliction—and sometimes because of it—he was able to live a productive life, both personally and professionally.

84

Title: The Empty Pages of History: Everyday Life of Children in the Holocaust

Presenter(s): Julia Viviana Santiago

Advisor: Dr. Tom Williford, History

Abstract: The effects of the Holocaust were different for every victim, but for the Jewish children the effects were greater and more traumatic; and frequently ended with their lives. The unimaginable happened, and for the children they could only ask why. This study is based on researching biographies and journals of several Jewish children living in Europe during 1938-1945 who experienced the Holocaust. Their stories begin in the homes they had been raised in, then continue to their new homes in the ghettos, and end in the camps for those who made it that far. Those few who were “lucky” enough to survive are able to reflect on the decisions that were made regarding the fate of the Jews and the effects that the Holocaust still has on their lives today.

85

Title: History of Pharmacy

Presenter(s): Alexander Wannigman

Advisor: Dr. Tom Williford, History

Abstract: Pharmacies are a very important part of people’s everyday lives. This project presents the history of the pharmaceutical industry in America from its early beginnings at the dawn of our nation to what it has become today. Through newspapers, popular magazines, scholarly journals, and interviews from firsthand accounts from pharmacists in Southwestern Minnesota, one can appreciate that the pharmacy in America has experienced many ups and downs during its history. Most notably, the Victorian Era and the Prohibition Era had the greatest effect on what the industry is today.

86

Title: Minnesota Volunteers, Early Minnesotan Leaders

Presenter(s): Kyle Berndt

Advisor: Dr. Tom Williford, History

Abstract: The Minnesota Volunteers had many great men serve the country in the American Civil War and the U.S.-Dakota War. These men would develop into future leaders of Minnesota. While most were not originally Minnesota born, they became true Minnesotans and their names can be found throughout Minnesota and its history books. This project highlights the wartime actions of Willis Gorman, William Colvill and George Morgan.

87

Title: The World’s First Oil Co-Op

Presenter(s): Samantha Pehrson

Advisor: Dr. Tom Williford, History

Abstract: One of the world’s first oil cooperatives was established in 1921 in Cottonwood, Minnesota. The local farmers of the Cottonwood area wanted to establish a way to obtain oil at a cheaper price. In addition to describing the early years of the coop, this research considers why cooperatives are established in the first place and where the idea of cooperatives started. This project is based on documents from the Cottonwood Co-Op Oil Company along with newspaper articles from 1921, as well as more general studies of the history and function of cooperatives.

88

Title: U.S. Government’s Need to Control the Deficit

Presenter(s): Mitch Dahlke

Advisor: Dr. Will Thomas, Accounting

Abstract: Our grandchildren will be saddled with the debt of this generation if Congress continues to ignore the United States’ fiscal crisis. The enormous

deficit has increased reliance on foreign countries and left our citizens reeling with uncertainty. Stagnated growth has caused investors to seek out stronger opportunities off-shore. For this project I sought out nonpartisan sources whose primary interest was to solve this problem rather than advance a political agenda. Unfortunately even among those sources, there's no general agreement on which course to take. Through a combination of tax reform, increased revenues, and reduced spending, a sustainable and prosperous monetary path can be attained. This project concludes with a broad outline that may give some direction to a solution.

89

Title: Reporting Tips: Choice or Automatic

Presenter(s): Stephanie Fransen

Advisor: Dr. Will Thomas, Accounting

Abstract: One estimate holds that in 1998 unreported tip income was \$9-\$12 billion. That amount has likely increased over the years while the IRS has been trying to develop ways to persuade employers and employees to report all tips received. Since food service is the leading industry that has employees receiving tips, the IRS has established programs so employees with tip income make sure to report all their tips. My research on this issue demonstrates, however, that there are flaws in all these programs and there needs to be a new way to make sure that the amount of unreported tips decreases. This would be beneficial for not only the government but also for the employees involved.

90

Title: Tired of High Taxes?

Presenter(s): Brian Harberts

Advisor: Dr. Will Thomas, Accounting

Abstract:

91

Title: Creative Accounting: Where is the Boundary?

Presenter(s): Abby Knutson

Advisor: Dr. Will Thomas, Accounting

Abstract: Earnings management involves manipulating reported earnings in order to achieve a specific goal. Management can use creative accounting to prove through the financial statements that they have met their goals. The question for this project is how far management can go when manipulating those numbers. Locating the boundary between acceptable smoothing and accounting fraud requires an understanding of the ethical reasoning behind management's use of creative accounting. Research indicates that using creative accounting does not improve the quality of reported

earnings. This project examines the research on creative accounting and draws some preliminary conclusions about where the limits might be found.

92

Title: IFRS & U.S.GAAP Convergence: Good or Bad?

Presenter(s): Haoua Kombeogo

Advisor: Dr. Will Thomas, Accounting

Abstract: International Financial Reporting Standards (IFRS), which represent the globalization of accounting standards, are currently used in more than 100 countries. The United States manifested its interest for IFRS in 2002 in a plan for converging IFRS with US Generally Accepted Accounting Principles (US GAAP). My research on this process demonstrates that this convergence represents benefits for the accounting profession, investors, companies and other financial statement users. However there are still controversies around convergence and this tends to slow down the transition. In this project, I evaluate whether the United States should adopt IFRS, conclude that adoption is in the best interests of the country, and make recommendations regarding potential related issues.

93

Title: Annual Budget vs Rolling Budget

Presenter(s): Brad Lanners

Advisor: Dr. Will Thomas, Accounting

Abstract: Annual budgets are not able to change with economic environment. With the economy changing quickly from month to month the annual budget is not capable of changing with it. The rolling budget is a budget that is updated either monthly or quarterly with that the budget can change with the environment. The research is done by using journals and article written by those who have used this method in practice or have studied the difference. There are many companies that have converted from the annual budget to the rolling budget. Converting to the rolling budget would make the budget more relevant and timely for investors to see where the company is heading.

94

Title: Should GMO Foods be Labeled

Presenter(s): Brian Meling

Advisor: Dr. Will Thomas, Accounting

Abstract: Genetically Modified Organisms (GMOs) have caused a fierce controversy in the U.S. Consumer groups advocate **for** and biotech corporations adamantly **oppose** labeling GMO foods. California voters made an important decision on GMO labeling November 6th when they voted

down Proposition 37, which would have required labels on food products that contain GMO ingredients. My results show safety concerns of GMOs due to grossly inadequate and biased testing. I have concluded that GMOs should be labeled. If the biotech industry chooses to sell GMO seeds, they should be required to label the resulting food and convince a skeptical public that the GMO foods are safe to consume.

95

Title: The Economic Impact of Hosting the Olympic Games: Is it Worth the Fight?

Presenter(s): Amanda Schmitz

Advisor: Dr. Will Thomas, Accounting

Abstract: As the Olympic Games continue to impact the hearts of millions around the world, the impact the Olympics has on the economy of the hosting country is often a drama playing out behind the scenes. Nations pay millions of hard-earned dollars to fight for the opportunity to host the games, while the economic gains are not always positive. Research and statistics collected and performed throughout the years by various authors are the dominant resources in which this study uses to determine the effects of hosting the Olympics on a nation's economy. Per the research conducted of major Olympic events, it was concluded that overall, hosting the Olympic Games has a positive economic impact on the hosting country. This positive impact influences both the short-term and long-term areas of economy such as overall economic growth, consumer spending, economic output, employment, income for local residents, and other areas.

96

Title: Google Maps and Android: Mapping the Marshall Bus Routes

Presenter(s): Alex Derringer

Advisor: Drs. Daniel Kaiser, Shusuang Man & Kouros Morteza pour, Computer Science

Abstract: There are two bus routes in Marshall operated by Community Transit. For those who have trouble remembering directions and maps, getting around the city of Marshall efficiently using the route buses (which are free to students) can be difficult, resulting in lost time and missed appointments. Static printed maps may not be helpful in planning routes that combine walking with the bus routes to allow the most efficient (free) travel. This Android app is designed to solve those problems using an interactive map that allows users to get directions that incorporate the bus routes.

97

Title: AndFinance: A Personal Finance Manager for Android Devices

Presenter(s): Shane Bass

Advisor: Drs. Daniel Kaiser, Shusuang Man & Kouros Morteza pour, Computer Science

Abstract: For ages the de facto means of managing personal finances has been the checkbook. Now that we have moved into the digital age it becomes apparent the checkbook doesn't have to be a book at all. Because of the growing popularity of smartphones it is possible, and even ideal, for a large number of people to manage finances on-the-go, quicker and more easily than with a traditional checkbook. To take advantage of this, the AndFinance application was developed to run on the Android Operating System, which is the most widely used mobile operating system in the world. Essentially a digital checkbook, AndFinance uses a SQL database to store account balances and transactions so it's easier than ever to manage finances. AndFinance, and other similar applications, can fully replace the traditional checkbook.

98

Title: Unit Converter

Presenter(s): Kweku Kponyoh

Advisor: Drs. Daniel Kaiser, Shusuang Man & Kouros Morteza pour, Computer Science

Abstract: The program that I will be presenting is a Unit converter. This is a handy program to have, imagine that you are in a foreign country and need to understand how the unit are in the country, for example a you come from a country that uses the metric system and end up in one that uses the imperial, or you would like to know the exchange rate for the currency. The units of conversion available are area, volume, length, and currency.

99

Title: Legend of the Blade

Presenter(s): Jacob Harrington & Parker Weihe

Advisor: Drs. Daniel Kaiser, Shusuang Man & Kouros Morteza pour, Computer Science

Abstract: Blender is a free program used for modeling, animation, and ultimately what seems like an unlimited amount of uses. We enjoy playing video games and it is one of our favorite hobbies. Putting those two things together we decided to create "Legend of the Blade" a fun adventure and arena styled game where the first to obtain the legendary sword atop a mountain wins. Our goal is to have a solid functioning game that looks as realistic as possible, has as few glitches as possible, and most

of all to be fun game to play. To achieve this it takes many hours learning through forums and videos, many more hours modeling, animating, programming, and testing. Throughout the process we have learned a great deal about the program Blender, each other, and how to work on a project as a team.

100

Title: School Schedule Program

Presenter(s): Lynn Lafky

Advisor: Drs. Daniel Kaiser, Shusuang Man & Kourosh Mortezapour, Computer Science

Abstract:

stage, ridicule. Research supports that most television series have moved into the final two stages identified as regulation and respect.

101

Title: Stress in College Students

Presenter(s): Missy Mueller

Advisor: Dr. Corey Butler, Psychology

Abstract: My hypothesis is that freshman and senior females will be more stressed than sophomore and junior males. I have approximately 100 participants from various classes that I have selected from a list of fall 2012 courses. The method that I chose to use is a two page survey, where the first page is demographic information and the second page is a stressful event survey based off of the Holmes and Rahe stress scale. The findings that I have found most interesting includes the amount of students who have had a close family member or friend passed away. By this happening these students stress level increased immensely. In conclusion, I have found a lot of surprising and interesting findings, but the results are still being processed.

102

Title: Portrayal of GLB in the Media

Presenter(s): Lauren Teal

Advisor: Dr. Kerry Livingston, Sociology

Abstract: The current content analysis of broadcast and cable network television series running between 2010-2012 seeks to identify the representation of Gay, Lesbian, Bi-sexual characters in shows known to have reoccurring homosexual characters. The scenes selected are based on the first appearance of a main character in the chosen episodes. Coding for this project is based on the theories founded in Clark's research on representation of minority groups. Clark (1969) established four stages of media representation for the previously mentioned minority groups; non-representation, ridicule, regulation, and respect. Results of the study support the premise that Gay males and Lesbians have successfully passed through Clark's earliest stage of non-representation and mostly through the second

Abstracts

Original Works Session – Art Program

1

Title: Guilt

Presenter: Crystal Severance

Advisor: Pat Hand, Art Program

Abstract: Joseph Cornell was an accomplished American-born artist and sculptor. He was best known for his box assemblages created from found objects, of which he was a pioneer. Edgar Allan Poe is a well-known author of mystery and macabre from the nineteenth century. I was most inspired by his story entitled “The Tell-Tale Heart,” in which a man goes mad and kills the elderly man he lives with. He hides the body under the floorboards. When the police come, he swears everyone can hear the heart beating, and eventually the beating of the heart becomes so loud that he confesses. I have always wanted to depict one of Poe’s pieces in a way that both does justice to his macabre style and conveys his story in a way that is true to my own art style. I feel I have combined both story and assemblage in this piece.

2

Title: Lockout

Presenter: Kiley Beste

Advisor: Pat Hand, Art Program

Abstract: My art piece was inspired by Joseph Cornell and the 2012 NHL Lockout. Joseph Cornell was an American artist and sculptor who is well-known for his work with assemblages. An assemblage is a form of sculpture that consist of “found” objects, which can be organic or man-made, arranged in such a way that they create a piece of art. I was inspired by the NHL lockout because I am a hockey fan and want the lockout to end so they can play hockey again. I depicted both sides of the lockout—the fans and players who just want to play or watch for the love of hockey and the businessmen that own the hockey franchise who are controlling the lockout, mainly because of money.

3

Title: Equality of Both Husband and Wife Now

Presenter: Kao Jong Yang

Advisor: Pat Hand, Art Program

Abstract: This box assemblage was inspired by Joseph Cornell. He was known for constructing box assemblages. Our assignment for sculpture was to pick a trend, either personal or not, that we fir in as an individual. In the Hmong culture in Laos and Thailand, the husband has always been a dominant role in the family. I like the idea now that the husband can help his wife with cooking, cleaning and watching the children when the wife is unable to. We are now living in the present and going forward to the future, and there are changes that have already been made and many yet to be made. Preventing an abusive marriage and leaving it in the past is one of these changes. The idea that one is superior to the other is not healthy for any relationship.

4

Title: Value Topography

Presenter: David Kelsey Bassett

Advisor: Ryan Muldowney, Art Program

Abstract: The artist Chuck Close is known for his large-scale photorealistic portraiture, but his creation process has little to do with photography. Photographers capture moments in time with the click of the mechanical shutter. Chuck Close’s process may take several months. Although Chuck Close paintings often resemble computer-generated images, they are done without the aid of computers. He uses a grid as the basis for all his paintings. By breaking down the image into minute squares, the process becomes more manageable to him. The painting, *KRS-One*, employs Chuck Close’ process of painting but instead of a grid base, a computer-aided tonal typography field was used. A photographic image of *KRS-One* was manipulated in Photoshop to create a tonal map and printed to scale from Adobe Illustrator. The map was then transferred by hand to the canvas and then the canvas was painted.

5

Title: “Girl”

Presenter: Jayme Plimpton

Advisor: Ryan Muldowney, Art Program

Abstract: My piece was inspired by artist Chuck Close. Close likes to focus on tonal values and carefully selects values according to their similarity to the actual values in a photographic image. I mimicked Chuck Close’s strategies by including a full-range scale of tonal values in a piece of art made solely of hole punches. I worked with a range of gray papers, as well as black and white. Hole punches were cut and placed onto a printed image;

carefully selecting and matching the tone of the hole punch to the tone on the image. In Close's work, he might have used hand-made paper that he tore himself to create the same affect. In this project, it was important to observe the subtle shifts in light and shadow, form and volume and maintain extreme focus while doing so.

6

Title: Viewfinder Still Life

Presenter: Sia Lor

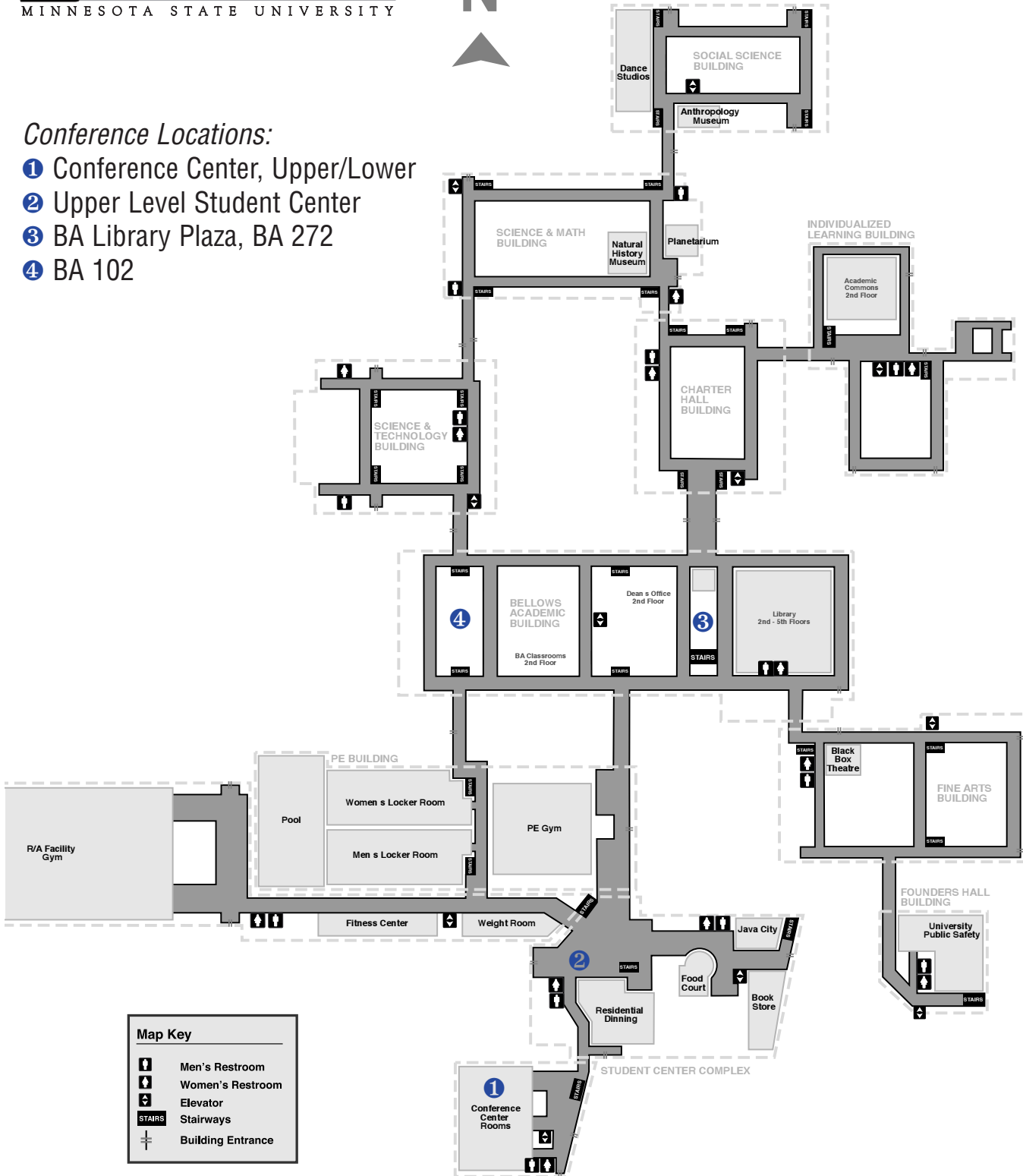
Advisor: Ryan Muldowney, Art Program

Abstract: A viewfinder made out of foam board, acts as the base for the geometric shaped objects. Placing the objects on the platform in various positions creates a still life. To further extend the two-dimensionality of the line drawing, atmospheric perspective is used. Atmospheric perspective is achieved by increasing the saturation of the object closest to you. As the objects move back into the distance, saturation is decreased creating the illusion of space and dimension.



Conference Locations:

- ① Conference Center, Upper/Lower
- ② Upper Level Student Center
- ③ BA Library Plaza, BA 272
- ④ BA 102





For more information contact conference coordinator:

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