

**SAC
2013**



Tuesday April 16, 2013

Presentation Listings

MINNESOTA STATE UNIVERSITY MOORHEAD
PRESENTS

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ACCOUNTING

Chia-Hsi Chang, Yi-Hsun Chang, Srijana Khanal

Cyber Security: Secure Our Digital Future

Advisor: Lori Johnson

Due to the huge scope of cyber threats, how can we protect the security of consumers, businesses, and the internet infrastructure? We examined several articles, such as, “Chinese Hackers Broke into the U.S. Government Security System,” and, “Major Banks Hit with Biggest Cyber Attacks.”

Throughout our research, we learned the constantly developing nature of threats and vulnerabilities not only affects individual firms and their customers, but also, collectively, the threats pose a constant economic and national security challenge. Also, security deficiencies in a limited number of systems can be exploited to launch cyber intrusions or attacks on other systems.

There are many ways to protect cyber security problems. Some of them are:

- ▶ Update firewalls, anti-virus and anti-spyware programs regularly.
- ▶ Allow access to system and data only by those who need it and protect those access credentials.
- ▶ Follow your organization’s cyber security policies and report violations and issues immediately.

These frameworks will improve security both at home and around the world so that Internet services can continue to provide a vital connection for trade and commerce, civic participation and social interaction around the globe.

MacKenzie Barry, Abby Kack, Danielle Stiller

Viruses and Social Media

Advisor: Lori Johnson

Since social media is becoming a big part of college students’ lives, we would like to express awareness to the students, faculty and staff. As a group, we are going to research how users can be affected by viruses through social media networks. The various social media sites that we are going to focus on are Twitter, Facebook and Pinterest.

We will explain how easy it is to acquire viruses by interacting through social media sites. Also, we are going to research how individuals can protect themselves from the harms of viruses. Our goal is to inform individuals about possible viruses that could be damaging.

Robin Keierleber

Enron

Advisor: Sheri Erickson

This will be a brief review of Enron and its collapse. I will discuss how Enron’s fraud was discovered, what happened as a result of the event, and who was found guilty in the Enron case.

AMERICAN MULTICULTURAL STUDIES

Zachary Toliver

Stereotypes of Black Masculinity in Modern Film

Advisor: Phyllis May-Machunda

While movies came into American culture as a new medium for creating stories, they also created a new dominion for recreating already popular black stereotypes. The stereotypes of African American masculinity, in particular, were fueled by cultural ideology. At times, these images invoked or justified violence. Although many positive images combating old stereotypes exist, those images of the black male have been, and still are, highly apparent. These stereotypes have a history of marginalizing and limiting the expectations of black men. From the early 20th century to the present, stereotypes of black masculinity in film have continued to portray black males as the violent, over-sexed buck or brute, the foolish Zip Coon, the loyal Tom, or the lazy Sambo. However, these stereotypes have also given birth to new generations of imagery, which have morphed and adapted to the surrounding modern culture. Using the methodology of content analysis, a series of films were deconstructed to better understand which sort of historic black male stereotypes still survive in film while also portraying new, modern-day typecasts.

ANTHROPOLOGY

Amanda Northwick

The Business of Archaeology: Cultural Resource Management

Advisor: Rinita Dalan

The importance of business skills in Cultural Resource Management (CRM) is not recognized by many people both in and outside of archaeology. Cultural Resource Management is applied archaeology focusing on managing cultural and historical resources. CRM projects include the discovery and identification of archaeological sites, evaluating sites and properties, and mitigating or preserving resources. Effective cultural resource management requires the knowledge of business practices, like management, accounting, marketing and finance. Management skills are key to managing people and resources used on a project. Accounting and finance skills ensure that the spending equals the amount awarded for the project. Marketing skills can be used to successfully compete for projects and to interface with the public. For a CRM archaeologist the application of business skills can make the difference between success and failure.

Andrea Kochensparger

An Anthropological Study of Breastfeeding and Maternal Health

Advisor: Bruce Roberts

It is widely acknowledged that maternal health and child health are two important and closely interrelated indicators of quality of life; in fact they comprise two of the eight United Nations Millennium Development Goals; MDG 4 is to reduce child mortality and MDG 5 is to improve maternal health. Adequate nutritional care of women and children is the foundation for a healthy society. Understanding early forms of nutrition is vital in fighting the deficiencies and death attributed to hunger and malnourishment. My research focuses on the works of prominent medical anthropologists in the history of breastfeeding and pregnancy. The Western world has negatively impacted many other cultures and societies, particularly when it comes to traditional birthing techniques and breastfeeding. These practices often have been denigrated and their weakening has led to a serious decline in health of women and children. In the United States, a revitalization

movement around natural childbirth techniques and breastfeeding has been underway for years, although it still disproportionately favors upper and middle classes. Studying changing trends in breastfeeding and pregnancy can help in initiating a revival of beneficial practices and improve the nutritional health of all women and children worldwide.

Andrew Domine

Changes in Celtic Art and the Influence of Greek Wine

Advisor: Michael Michlovic

Between 600-400 BC, the Celtic peoples of Europe began a more intensive trade with Greek and Etruscan peoples that resulted in a variety of changes in Celtic art. These changes mimic Greek vogues and were most likely related to Celtic trade for Greek wine. Wine was regarded as a precious commodity in Celtic culture and was very likely a primary mechanism by which artistic aspects of Greek culture penetrated the Celtic world. The artistic changes in Celtic art transpired as a response to the association of Greek wine drinking and wine paraphernalia with elite members of Celtic societies.

Carli Hermes

Learning From Pottery: The Irwin Johnson Site in Eastern North Dakota

Advisor: George Holley

During the summer of 2012, the MSUM Archaeology Field School carried out excavations on the Irwin Johnson site in eastern North Dakota along the Sheyenne River. The site lies next to an important proto-historic village site of the Cheyenne, known as the Biesterfeldt site, which was excavated by the MSUM Archaeology crew in past years. At Irwin Johnson, the crew recovered a variety of artifacts including animal bone, lithic debris, shell and pottery. The pottery sherds were consistently small and difficult to identify. Only a small number of the sherds were diagnostic, meaning identifiable characteristics such as shape, color and decoration could be identified. Although adjacent to the Biesterfeldt village, the analysis of the ceramics reveals an earlier occupation, event stretching back to a poorly known Late Woodland period. It appears that the Irwin Johnson site was occupied in an intermittent manner from around 600 AD until sometime during the Late Prehistoric period (1000-1600 AD).

Denell Peterson

Complementary and Alternative; The Efficacy of Community Acupuncture

Advisor: Bruce Roberts

Acupuncture is the insertion of ultra-fine needles into the body at specific points to treat specific health problems. The purpose of this study is to gain insight in the efficacy of community acupuncture as a non-consumptive healthcare model that brings people together to promote human well-being and to evaluate how acupuncture and other similar modalities might be integrated into biomedicine as a modality of Public Health.

Diana Oster, Andrea Kochensparger

The 25th Annual Nobel Peace Prize Forum: The Power of Ideas: People and Peace

Advisor: Bruce Roberts

This poster will present highlights from the 25th Annual Nobel Peace Prize Forum that we attended from March 8 to March 10, 2013 in Minneapolis, Minnesota. This event is the Nobel Institute's only such program or academic affiliation outside Norway. Its mission is to inspire and engage students and citizens to become full participants in peacemaking efforts around the world. This year's notable speakers included 2006 Nobel Peace Prize winner Dr. Muhammed Yunus, founder of the Grameen bank and father of microcredit; medical anthropologist Dr. Paul Farmer, founding director of Partners In Health and U.N. Deputy Special Envoy for Haiti; and Tawakkal Karman, journalist and human rights activist whose humanitarian work for the rights and safety of women and children in Yemen earned her the 2011 Nobel Peace prize. Our poster will do more than simply recap this event because we will also briefly address what we each learned from this truly unique experience.

Diana Oster, Stephanie Noyes, Sarah Smith, Emily Haven

Meskwaki Ethno History

Advisor: Erik Gooding

Under the guidance of Dr. Erik Gooding (Anthropology/Earth Science) the Meskwaki Research Group (1) was formed in the fall of 2013 as an outgrowth of the ANTH 390: Ethnohistory course. The purpose of this research group was ethno historical research on the Meskwaki Nation, a central Algonquian people who currently reside in Iowa.

Ethnohistory is the use of historic documents in the writing of past cultures. This presentation highlights two areas of our current research, census work and genealogy reconstruction. Our census work centers on the Bureau of Indian Affairs rolls from 1880 to the early 1900s, a key period in Meskwaki history where they resided on their own land (not a federally regulated reservation) and under their own control. We are looking at a series of features of social organization, such as number of households, households with and without wives, households with grandchildren present, ages difference between spouses, number of adults (male and female), and number of children (male and female). Our second research area focuses on the reconstruction of selected genealogies from the 1700s through the mid 1900s. This data will help us to understand the changes in their traditionally patrilineal culture in light of 300 years of contact with Euro Americans.

Lynsee Langsdon

The Bayley Collection: A Guide to a Ceramic Sequence for the Sheyenne River of North Dakota

Advisor: George Holley

Edgar L. Bayley collected Native American artifacts near the Sheyenne River in Ransom County North Dakota over the years 1925-1930. The sherds from Bayley's collection are unique in that they have the potential to fill in poorly known parts of the region's ceramic sequence. Ranging from the Woodland through Late Prehistoric period, there is surprising diversity in this modest sample. The presence of Woodland types from Minnesota in this collection, as well as in other periods, serves as a glimpse into the ceramic diversity in the region. Bayley's collection represents known but unreported cultures in North Dakota. Using comparative dating armed with dated contexts and other collections from the region, I will offer a preliminary sequence for the ceramic periods of the Sheyenne River.

Matthew Doherty

Obesity in the Independent State of Samoa

Advisor: Nandita Bezbaruah

As of 2002, 85.2 percent of the population on the island of Samoa was obese. One of the reasons for the epidemic is the transition from eating traditionally prepared self-procured and produced food, to consuming low-nutrient imported food. Traditional Samoans were



horticulturalists who grew crops and ate whatever plants they had at hand. Freshly caught seafood, chicken and pork were the wild food, which provided protein to Samoans. Traditionally, Samoan villages were headed by a council of chiefs who distributed food and oversaw the production of crops to the families they ruled. This method of distribution worked for centuries, until the West started colonizing the area in the 19th century. Farming families started breaking up in the 1960s to focus on the urban goals of employment and education to increase economic resources. Rice is grown for food and as a cash crop in Samoa, but the traditional plant food, along with chicken and pork, is still grown and raised on family plantations and served on special occasions. Health officials should examine Samoan obesity from a socio-cultural and ecological perspective by evaluating the financially challenged neighborhoods they live in and by researching the lifestyle of the average Samoan. This is needed to discover the cultural views on what needs to be changed.

McKenzi Olson

Analysis of Ceramics from the Rotenberger Site

Advisor: George Holley

The Rotenberger site is located within a meander loop of the Sheyenne River in southeastern North Dakota and is currently the largest known site in that area dating from the Late Prehistoric Period (1000-1600 AD). Understanding of this period of time in the Sheyenne River valley is lacking due to only small collections existing from surface collections and limited excavations. A surface survey done by the MSUM 2012 field school recovered a decent sample of ceramics that will help characterize this significant period in the region's prehistory. From these materials, I will present an analysis, as well as discuss their significance.

Melissa Mickelson

The Archaeology of Grant County, Minnesota

Advisor: George Holley

Grant County, Minnesota has been home to many people for over 9,000 years. Unfortunately much of this past has gone unknown to most. For the past seven months, I have been working on a project with the Grant County Historical Society and Museum to aid them in better portraying this lengthy past. This project has included the analysis of four collections of prehistoric ceramic, lithic and bone artifacts that were previously not properly on display at

the museum, as well as much research of the archaeological work that has previously been done in the area. The culmination of this project is a new exhibit for the Grant County Museum making the rich cultural past of Grant County more accessible to the public. This exhibit will display Native American artifacts from four of the museum's collections and explain what they tell us about the people who left them behind.

Paul Pilch

How Language Is Used to Construct a Movie Character

Advisor: Erik Gooding

Movies and television often use the particulars of language to construct characters and their personalities. I have analyzed how language is used in two specific movies to construct a character, and how that relates to stereotypes. My research involved watching a couple of movies to find my results. For example I started with the Disney movie "Rescuers Down Under" to analyze how the characters presented in this movie provide great examples of how big movie corporations such as Walt Disney have played key roles in creating the voices that most Americans and many others around the world who have seen Disney movies view as the stereotypical voice that creates a specific character. As a result, I learned that as movie viewers, we are left with a perception of what to expect for certain characters and we are provided with a conceptualized image of which voices create certain characters. The U.S. movie industry has played a big role in creating these images we have imprinted in our minds.

Rebecca Wallace, Jessica Sharp

Magnetic Susceptibility Analysis of the Sakakawea Site at Knife River Indian Villages National Historic Site

Advisor: Rinita Dalan

The Sakakawea Site at Knife River Indian Villages National Historic Site (KNRI) near Stanton, North Dakota is located on a cutbank of the Knife River. This location makes it prone to erosion, causing the loss of cultural resources from this site. The cutbank, however, also provides an opportunity to view subsurface features along the length of the site. MSUM was asked by KNRI and the Midwest Archeological Center of the National Park Service to conduct magnetic susceptibility sampling of house features and midden deposits along the cutbank. Magnetic susceptibility

measures the ease with which a soil becomes magnetized, which relates to environmental processes and human use of an area. Magnetic susceptibility data were collected in the field using portable instruments along the exposure. Soil samples were also collected and brought back to the lab for additional magnetic analysis and soil textures and colors. Our data shows there is a significant difference in the magnetic susceptibility of the natural soils and the cultural deposits. Variations in susceptibility within the sampled areas indicate different types of cultural deposits through their magnetic signatures. For example, layers that showed evidence of burning had higher magnetic susceptibility. Our study demonstrates the potential of magnetic susceptibility for interior portions of the site as an aid in site management.

Samantha Kost

Sheyenne River: A Prehistoric Occupation

Advisor: Michael Michlovic

The Rotenberger site (32RM 226) is a large prehistoric occupation, located on the flood plain of the Sheyenne River in Ransom County, North Dakota. The site was inspected in June of 2012 and produced a substantial quantity of animal bone, ceramics and stone artifacts. The stone tool (lithic) assemblage from the site represents many of the stages of tool production. The variety of tools represented at this site, as well as the type of raw materials presented, shows different activities, including tool reduction, trading and hunting. The majority of lithic material present at the site is a local resource, Swan River chert, comprising of 67.3% of the total. More exotic materials, such as Knife River flint, only comprise 9.9% of the lithic debris and tool assemblage. I argue that this evidence indicates the site was used continuously over some period of time. It also suggests that little interaction was occurring between people of the west and eastern sides of the state.

Timothy Erickson

The George Herzog Yanktonai Dakota Research Project

Advisor: Erik Gooding

In the early 1920s, the noted Ethnomusicologist George Herzog undertook a comparable study to Frances Densmore's seminal Teton Sioux Music. Herzog worked with the Yanktonai Dakota, who resided to the north of the Lakota who Densmore had

worked with a decade earlier on the Standing Rock Reservation. Herzog's field notes and recordings were never published, and this valuable musical and cultural data on a lesser-known Native American group has remained in Indiana University's Archives of Traditional Music for almost one hundred years. This presentation discusses my work with Dr. Erik Gooding (Anthropology) on this important collection, from our work on transcribing and annotating field notes, translating Dakota song texts and terminology, and preparing the manuscript for publication.

ART AND DESIGN

Andrea Dacar

Judging a Book By Its Cover

Advisor: Anna Arnar

Like it or not, every book is judged by its cover. A book's cover is the first impression on consumers and is the main reason for readers to pluck it off the shelf. Book jacket design is essential to an author's success and to a reader's potential journey into the text. Two of the biggest names in post-war American book jacket design are the late Alvin Lustig and Chip Kidd. Lustig's designs have lasted through the decades and Kidd's designs represent current developments. Using interviews, articles and Kidd's own writings, this presentation will investigate Kidd's view on the relationship between a book's cover and its content. This presentation will also explore elements, relations and differences between Lustig and Kidd, thereby demonstrating how book jacket design has changed with the introduction of electronic publishing formats.

Ashley Strazzinski

The Nude Body and Contemporary Performance Art

Advisor: Anna Arnar

More often than not, the subject of the nude body - particularly in contemporary performance art - is often avoided or dismissed. My presentation aims to aid viewers in furthering their understanding of the exposed human form. Endurance, narcissism and sexuality are the most common notions found to surround the use of the nude body within modern performance art. I will examine these and other interrelated concepts through the works of performance artists such as

Marina Abramovic, Carolee Schneemann and Vito Acconci. Through examples of the aforementioned artists' works, I hope to show a variety of ways that the nude body is utilized in the realm of contemporary performance art.

Brianna Varner

Function and Appeal: Typographic Design in the Middle Ages

Advisor: Holly Silvers

In order to understand fully current trends in graphic design, we must define what it is and when it started. Unfortunately, graphic design is the orphan of all art forms, since design lacks a founder. With a cloudy identity, the best place to plant graphic design roots would be during the Middle Ages. I will discuss how basic alphabetical letterforms were originally created for communication purposes, but developed into a decorative form of medieval handwriting called calligraphy, and later, into a complex art form called typography. I will accomplish this by identifying popular letter styles that matured during the Middle Ages. Then, I will discuss how the mass production of manuscripts contributed to compositional experimentation. Finally, I will point out how design elements and pictorial styles were used in the marginalia. As a result, I will illustrate how medieval book production techniques had a significant influence on current graphic design trends.

Fan Yin

Ai Weiwei and Art as Activism

Advisor: Anna Arnar

Do artists have social responsibilities to uphold? What are the social functions of art and design? Artists play an important role representing and upholding social concerns and political issues. In this paper, I will examine an outstanding Chinese contemporary artist named Ai Weiwei, who is a good example of an artist as social and political activist. Weiwei is very open and brave about what he saw from the Chinese government's stance on human rights and democracy. After his highly publicized arrest, Weiwei has continued his public criticism of the Chinese government's stance on human rights and democratic freedoms. In this presentation, I will examine how artists like Ai Weiwei uses humor, metaphors and symbolism to engage in social activism.

Jami Bezy

Semiotics and Visual Art

Advisor: Anna Arnar

The purpose of this presentation is to explore the relevance and use of semiotic theory in the visual arts. In addition, I will open discussion about whether or not it is important to consider semiotic theory in interpreting and creating art. I will present the theory in a way that is relevant, specifically to visual artifacts, as much of the current research on semiotics focuses on verbal or written language. Questions to be addressed in the presentation include: "Why should artists think about the symbolism (intentional and incidental) in our work?" "Can semiotics really help explain on a cultural level how to respond to contemporary works?" and more specifically, "Does it even matter whether art can be explained in broad cultural terms or not?" In order to tackle the subject on a manageable scale, I will focus on select works from artists such as Cindy Sherman and Damien Hirst. Ultimately, the goal in presenting this research will be to emphasize the different ways that art can be interpreted beyond a visceral response to a work's material presence and immediate aesthetic.

Kaitlyn Rewitzer

A Study in Medieval Pilgrimage and Its Badges

Advisor: Holly Silvers

In this paper I will discuss the popularity of pilgrimage badges common in Western Europe from the 12th to the 16th century. Pilgrimage badges were an important part of the culture of religious pilgrimage in Medieval Europe. The extent of their purpose and influence is complex and widespread; however, it is a topic that has not been heavily studied. Through combining information about pilgrimage from authors including Edwin Mullins and Jonathan Sumption, with recent articles from the International Society for the Study of Pilgrimage Art, my research has concluded that these badges were not merely passive objects; rather, they influenced how far a pilgrim would travel to buy them, affected the status of a person who wore them, and aided devotionals in life at home. Indeed, they served as active participants in a pilgrimage, encompassing the entire journey. As such versatile objects they also reflected the attitude of their patrons, allowing us a glimpse into the economic and cultural behavior in the Middle Ages.



PRESENTATION LISTINGS

Kathryn Jacobson

The Failure of St. Pierre Cathedral at Beauvais

Advisor: Holly Silvers

The cause of the massive structural failure of the vaulting at the gothic cathedral of St. Pierre in Beauvais, France, has eluded architects and historians for centuries; the reason for the collapse is yet unknown. In this paper I will examine and critique Violet-le-Duc's theories behind the structural failure. I suspect his theories are incorrect. I will also explore the modern theories of architectural historians, Maury Wolfe and Robert Mark, who I believe offer the most likely scenarios for the structure's collapse. I conclude the paper by proffering that the collapse of Beauvais vaulting was because of the human error of having too many builders, architects and patrons involved in a long-term plan. This is relevant to us today because we may never understand the architectural cause of the collapse, but we can understand the social environment behind the construction of the cathedral and reveal how medieval society thought and worked. This knowledge will lead us to better understand similar works and mistakes around this time period. Further, understanding the reasons for the disastrous errors and subsequent structural failure at Beauvais should serve as a reminder to modern architects in order to prevent similar mistakes in the current era.

Linnea Fitterer

Vivienne Westwood: The First Punk

Advisor: Anna Arnar

British underground culture and rock and roll rebelliousness inspired Vivienne Westwood to create designs that overturned the fashion industry and put eyes on England as a leading contender in the fashion world. The purpose of my study is to investigate how Westwood's designs and visual aesthetic ignited the punk movement in the United Kingdom, beginning in the 1970s. As an unconventional British woman in the male dominated fashion world, she embraced her otherness, focusing her work on anarchy and quirkiness. My paper will also address the evolution of her career in the 1980s after the decline of the Sex Pistols phenomenon, and the development of an historical influence on her fashion collections. Maintaining her rebel attitude and intrigue with social outcasts, she designed vibrant street wear inspired by images of 17th century pirates and working class people. Westwood's true talent lies in her ability

to concentrate on the female form and theatrical themes, while simultaneously working with traditional English textiles and tailoring.

Rachel Brixius

Club Design Presents: What is Graphic Design

Advisor: Allen Sheets

This presentation will serve to inform conference goers about graphic design as an entity and as a profession.

ASTRONOMY

Shouvik Bhattacharya

Estimating the Distance of an SX Phoenixis Star

Advisor: Juan Cabanela

Minnesota State University Moorhead has a working observatory, which was recently renovated and named the Paul P. Feder Observatory, located at the Buffalo River State Park in Northwest Minnesota. The observatory is equipped with a 16" Cassegrain reflecting telescope, an Apogee Alta CCD camera, two research grade computers and the SBIG SGS Spectrograph, which was installed in the observatory facility in fall 2012. I used the facility and made photometric observations of an SX Phoenixis star named the XX Cyg. The distance of the RR Lyrae star was estimated by analyzing the photometric data, extracting information about period and brightness from the observed science images.

ATHLETIC TRAINING

Chelsey Koch

Wolff-Parkinson-White Syndrome: A Literature Review

Advisor: Jay Albrecht

Wolff-Parkinson-White (WPW) Syndrome is a potentially fatal heart condition that affects up to 3 percent of the population of all ages. WPW Syndrome is a condition that can be genetically inherited or can occur spontaneously. WPW Syndrome is rarely diagnosed if signs and symptoms are not present. An electrocardiogram is the most common test used to confirm a diagnosis of this condition, but lacks the sensitivity to assist in preventing

sudden cardiac death. This literature review highlights WPW Syndrome history, diagnostic criteria and limited treatment options. Concluding remarks feature the author's personal account with WPW Syndrome.

Colton Maher

Psychosocial Intervention for the Injured Athlete: A Literature Review

Advisor: Jay Albrecht

Research indicates that approximately 17 million sport injuries occur each year among American athletes. Coaches, teammates and athletic trainers should know how to respond to an injured athlete from the onset of an injury to the time when an athlete returns to play. While physical injury can often be seen or imaged diagnostically, and subsequently monitored throughout the healing process, the psychological aspects of an injury are not always as evident. Physical injury puts an athlete's physical well-being at risk, but also at risk are the athlete's self-esteem, belief system, personal commitments, and emotional equilibrium. Psychological recovery must be considered and monitored throughout the injury recovery process, and must also occur in conjunction with the athlete's physical recovery - a situation that can sometimes be overlooked. This literature review highlights the importance of an athletic trainer's role as an advocate for managing psychosocial issues that arise concomitantly with physical injury.

Creed Ott

Chronic Traumatic Encephalopathy (CTE): A Literature Review

Advisor: Jay Albrecht

Chronic Traumatic Encephalopathy (CTE) has been defined as a progressive neurodegenerative disease caused by repetitive head trauma. A prominent marker of this disease is the presence and buildup of abnormal protein in the brain called tau. Unfortunately, postmortem examination is the only way to determine the presence of this abnormality definitively. The neurodegeneration this protein causes leads to symptoms such as impulse control problems, cognitive deficits, depression, anger, and behavioral disinhibition, which then ultimately leads to a powerful state of dementia. In summary, this presentation will highlight a literature review regarding the

history, prevalence, pathology, symptoms, diagnostic tests, risk factors and prevention measures associated with CTE.

Donald Hermanson

*Achilles Tendon Pathologies:
A Literature Review*

Advisor: Jay Albrecht

The mystique of an Achilles tendon injury includes human anatomy, pathology and physical rehabilitation. Because of its association with a variety of soft tissue and bony structures in the lower extremity, the opportunity for an array of injuries involving the Achilles tendon is often abundant, and the ensuing rehabilitation plan is difficult to implement in a consistent and successful manner. This literature review/presentation provides a brief overview of an Achilles tendon injury, the phases of healing involved with Achilles tendon injuries, and a general protocol for injury recovery along with return-to-play guidelines.

Jessica Doar

*The Vegetarian Athlete:
A Literature Review*

Advisor: Jay Albrecht

Vegetarianism is becoming a popular lifestyle for athletes. Athletes seemed to be intrigued with the vegetarian eating and/or lifestyle for a number of reasons, but primarily for the goals of better overall health and possibly better sports performance. Current professional literature is limited with regard to the question, “Will becoming a vegetarian affect athletic performance?” Few studies have investigated this particular question, but the majority of present-day authors indicate that there is no reason why a vegetarian athlete cannot perform at the level of a carnivore if they follow a proper diet that fulfills all aspects of nutrition. This poster presentation reviews the current professional literature for information involving the vegetarian athlete, and additionally offers guidelines that all athletes should follow in properly fueling their bodies.

Leiza O’Keeffe

*Sudden Cardiac Death (SCD) in Athletes:
A Literature Review*

Advisor: Jay Albrecht

Approximately 300,000 cases of Sudden Cardiac Death (SCD) occur annually in the United States. SCD is not universally defined, but in much of the professional literature, an

accepted description includes “an unexpected, non-traumatic death from cardiac causes, which is presented via a loss of consciousness within one hour from the onset of any signs or symptoms.” This literature review focuses on the major cause of sudden death, hypertrophic cardiomyopathy, as well as a number of the other causes of SCD. Included also is a list of the signs and symptoms of each of the conditions or causes, evaluation and diagnosis of the causes, and guidelines for return to play. Concluding information offers a variety of preventative/intervention measures that can be utilized to reduce the risks associated with SCD.

Shannon Brauer

Sports Related Dermatoses

Advisor: Jay Albrecht

Sports related dermatoses, or skin disease, are among one of the most common ailments affecting athletes today. Differentiating between a virus, bacteria, fungi and a parasite is paramount with regard to diagnosis and treatment of a skin disease. A strong knowledge base is critical with respect to diagnosis and treatment of a variety of dermatoses. As a general matter, prevention of injuries and illnesses are considered a top priority for Athletic Trainers, so understanding how to diagnose and treat skin disease is significant with regard to prevention and avoiding the spread of infections. This literature review highlights the importance of understanding skin diseases, their effect on athletes, and how prevention measures play a significant role in stopping or minimizing the spread of skin disease.

BIOLOGY

Alicia Kiser, Michael Winge

*Effects of Ecotourism on Local Culture in
Monteverdi, Costa Rica*

Advisor: Brian Wisenden

Ecotourism is on the rise; and with this rise, the side effects grow equally. With an awareness campaign, the idea would be to educate the tourists using the Monteverdi Cloud Forest for a destination on the impact they have on the local community surrounding the park.

Alicia Wolf

Interactions in an Ecosystem: A 5E Lesson Plan

Advisor: Richard Lahti

Over the past five decades, the remote Island of Isle Royale has been used to study the ever-shifting moose and wolf populations. Beginning in 1958, the project is now the longest continuous study of predator-prey systems worldwide. Because the findings reveal a closely linked predator-prey system relationship, I will be using the Isle Royal study to demonstrate interactions in an ecosystem with a 5E lesson plan approach. The 5E lesson plan was developed to help students better understand concepts through personal experiences and building on ideas. This specific method promotes teaching and learning through a sequence of five stages: engage, explore, explain, elaborate and evaluate (Bybee, Carlson Powell & Trowbridge, 2008). Following the format for a 5E lesson plan, my presentation will begin by “engaging” students using actual data collected from the Isle Royal Study. I will use the data, information, and graphs of moose and wolf populations to stimulate a class discussion in which we will analyze some of the apparent interactions within the Isle Royale ecosystem. Just as the purpose of any 5E lesson plan set-up, the information and ideas developed during the “engage” stage of my lesson would be further enhanced and built upon during the remaining stages of the 5E sequence.

Alli Fox, Diana Lemanski

Metagenomics

Advisor: Sara Anderson

Metagenomics is the study of the diversity of microorganisms in different environments. The research in this project focuses on microorganisms in soil. Samples will be collected from Regional Science Center, both dry soil and silt, along with various other locations around the Fargo Moorhead area. Genomic DNA will be extracted from soil in the environment and will include DNA from all organisms present in that area. This DNA will be submitted to a biotech company to sequence the 16S rRNA gene. The data will be used to create Phylogenetic characterizations of the community, built from the 16S gene sequences.



Amy Moorhouse

Effects of Habitat Fragmentation on Plant-Pollinator Interactions on Tall-Grass Prairie Remnants

Advisor: Sara Anderson

Plant-pollinator interactions are one of the most common mutualistic relationships. The relationships that occur among plants and pollinators are called pollination networks. Habitat fragmentation occurs when natural habitat is destroyed or removed to use the land for other uses such as agricultural fields and roads. These fragments are of various sizes, quality and distance from other remnants. This study focused on the effects of habitat fragmentation on plant-pollinator interactions on the tall-grass prairie. To explore this, I monitored four prairie fragments in the Red River Valley area of Minnesota, collected and identified the pollinating insects and compared the pollinators across the fragments. I found there was no difference in the number or diversity of insect families and bee genera present on the different prairie fragments. However, when comparing across the sites, the Regional Science Center was the most diverse and Felton prairie was the least diverse. There was also no correlation between the pollinators present and floral patch size, distance to roads, distance to water, and distance to buildings. Overall, the prairie fragments are healthy and diverse. Felton prairie should be monitored more closely for preservation needs because it had the least diverse pollinating insects.

Amy Moorhouse

Nipped in the Bud: New Ground Cherry Moth Performs Better as a Frugivore Than a Budworm

Advisor: Sara Anderson

Life history feeding polymorphism occurs when a species uses multiple feeding strategies at one life stage. This may signify either (1) intraspecific competition over a preferred resource or (2) variation in the success of one strategy over another, under different contexts. The ground cherry moth (*Symmetrischema lavernella*) exhibits a feeding polymorphism while utilizing its host plant, *Physalis* spp. The larvae either feed on a single fruit or a single floral bud, but it is not known what governs the outcome of each strategy. To explore this, I looked for differences in body size, development time, predation and parasitism across feeding strategies. Research

proves that frugivores have larger pupal weights and can have a higher survival rate than budworms, but development takes the same amount of time in both strategies. Frugivory appears to be the preferred feeding strategy although intraspecific competition appears to be driving the use of the less preferred resource.

Angela Kooren, Amie Nowacki, Jaime Kallstrom, Calvin Flander, Olivia Hansen, Kara Nygaard, Chelsea Schmaltz, Jordana Anderson, Kristin Wittman

Population Control of Urban Canada Geese in Moorhead, Minnesota

Advisor: Donna Stockrahm

Urban Canada Geese (*Branta canadensis*) are increasingly numerous in many places in the United States, including the Fargo (N.D.)-Moorhead (Minn.) area, which is directly on the Mississippi Flyway. Many geese nest and raise their offspring within city limits. For the past three years, our study has been conducted on land owned by American Crystal Sugar (ACS) for its sugar-beet processing plant. Year-round open water in holding ponds and minimal numbers of predators have provided optimal breeding habitat for a number of years. In spring 2010, 2011 and 2012, we quantified goose numbers (March-April), monitored nests (April-May), and oiled (April) all but one to two eggs in each nest as part of a long-term management plan to curb burgeoning goose numbers. For 2010, 2011 and 2012, respectively, numbers of nests markedly declined from 123 to 64 to 28, while mean clutch size (5.9, 5.8, 5.1), range (1-12, 3-14, 1-13), and mode number of eggs per nest (6, 6, 6) all remained fairly stable over the three-year period. The mean of 5.1 eggs/nest looks a bit low for 2012; however, we noted an unusually high number of nests (n=5) with only one egg where that nest was either subsequently abandoned or destroyed. If we omit these five nests, the average clutch size jumps to six. Counts of geese also decreased during the three years, with maximum counts approaching 440, 250 and 300 for each year, respectively. When the numbers of nests are compared with the numbers of geese on the premises during the nesting season, it is clear that many of the geese are using the habitat but not necessarily nesting there. Concurrent, but separate from our study, any remaining adult geese and/or hatchlings were rounded up and removed from the property in June of each year. Apparently, the combination of egg oiling and

goose removal has reduced goose numbers, but long-term effects are not yet known. It is possible that the vacated habitat on American Crystal Sugar grounds will be re-populated with other resident geese in the Fargo-Moorhead area. Nest monitoring is expected to continue in spring 2013.

Anna Hunt

3' Modifications on Myxomycete Slime Mold Mitochondrial mRNA Transcripts

Advisor: Tamara Mans

The myxomycete slime molds use several unique forms of RNA modification on their mitochondrial transcripts, including five different varieties of RNA editing, plus poly (U) tailing. Prior investigations have demonstrated that poly (A) tails are missing from at least two mitochondrial mRNAs in *Physarum polycephalum* and one mRNA in *Stemonitis flavogenita*. Instead, non-encoded poly (U) tails of varying length were discovered at the 3' ends of these transcripts. Using a modified "anchor" approach, we are investigating both RNA editing and poly (U) tails by amplifying mitochondrial mRNA transcripts from *Didymium nigripes*. We isolated total mRNA, then used yeast poly (A) polymerase enzyme in vitro, supplied with only GTP nucleotides to add 3' poly (G) extensions to the pools of RNAs. We reverse transcribed with a tagged poly(C) primer to create cDNAs with a known end sequence. We have PCR amplified col transcripts from the pools using "internal" forward primers and a reverse primer corresponding to the known "tag" sequence. We have cloned and sequenced our products to determine the uncharacterized coding sequence and the 3' UTR of these mRNAs. Editing sites and non-templated U's are being identified by comparison with corresponding DNA sequence.

Bjorn Halvorson, Kara Nygaard

Discovering Hidden Communities- Metagenomics Approach to Identifying Microbial Diversity in Soil Samples of the Red River Valley

Advisor: Sara Anderson

We used high throughput DNA sequencing to analyze soil samples with varying levels of fertility for the 16S rRNA sequence. Variances within these sequences allowed us to determine the microbial diversity of the soil using bioinformatics tools to identify species present. Soil samples were collected from land inside

the Red River Valley (RRV) flood plain that is regularly cropped, inside the RRV flood plain that is reestablished prairie, outside the RRV flood plain that is regularly cropped and outside the RRV that is reestablished prairie. We looked at the four different types of soil environments to compare the different microbial diversities.

Brittany Beers

A 5E Inquiry Lesson on Osmosis

Advisor: Richard Lahti

Inquiry learning is a seeking for truth, information or knowledge. Educators have been passionate for years about finding the best way to reach their students in the classroom. It has been found that direct involvement leads to understanding, which strengthens crucial learning skills and attitudes that construct new knowledge. In this presentation, I will teach a high school level lesson on the process of osmosis and diffusion among cells in a 5E learning style. Osmosis is a process that cells undergo by having solvent molecules transfer across membranes in order to reach equilibrium. By delivering this lesson in a 5E manner, a hands-on, minds-on type of strategy is provided. 5E inquiry includes the components: engagement, exploration, explanation, elaboration and evaluation, which belong to a learning cycle model that has been confirmed to improve student's retention on subject matter. During this presentation I will demonstrate the fundamental principles of a 5E inquiry model by involving my audience and allowing them to discover osmosis through an interactive lesson.

Brittney Rother, Julie Piche, Nicole Olson

Effects of Chemical Cues on Skeletal Ossification in Costa Rican Cichlid Embryos

Advisor: Shireen Alemadi

Convict cichlids (*Amatitlania nigrofasciatum*) have bi-parental defense and prolonged care of their young for four to six weeks once the young are free-swimming. Convict cichlids' young rely on alarm cues that are released by damaged skin that indicate the potential presence of predators. Some aquatic animals not only use alarm cues to cue behavioral responses to predation risk, they also use these cues to alter their development to favor forms that are better able to evade predator attack. Convict cichlid eggs were exposed to one of the following treatments: (1) alarm cue with predator odor, (2) alarm cue or (3) water (control). In total, 60 eggs were treated from five

different parental pairs. Then, four eggs from each parental pair were assigned to each of the three cues. Eggs were treated twice a day until they hatched and were then allowed to grow 5 millimeters to 7 millimeters in length, then preserved and stained for analyzes. Pictures of the fry post-stain were used to score their skeletal ossification. We hypothesize that the eggs treated with predator alarm cue will have more ossification than the eggs treated with alarm cue and the control.

Calvin Flander, Olivia Hansen

Phenotypic Plasticity of the Convict Cichlid

Advisor: Shireen Alemadi

Convict cichlids are small freshwater fish from Central America. Like most fishes, larval cichlids have a skeleton made of cartilage that ossifies into bone as they grow and become juveniles. Past research at MSUM has shown that the timing of ossification is earlier for fish from Costa Rica than for fish from Nicaragua. The earlier in life prey is able to adapt to the stress of predation the chance of their survival is increased. In prior research we have shown that eggs of the convict cichlid conditioned with an injured conspecific cue have been able to employ anti-predator tactics more efficiently than those eggs that were treated with the control. We will treat convict cichlid eggs with three different cues (alarm cue + predator order, alarm cue and water) and test for developmental responses. We hypothesize that these different treatments will play a role in significant morphological (body depth) differences that lead to increased survival. Research has shown that convict cichlids use chemical cues in assessing danger and respond to these cues with behavioral avoidance and varied morphological changes.

Carissa Storseth, Kari Mroska

Heterogenous Distribution of Parasitism Risk for Fathead Minnows in Shoe Lake, MN

Advisor: Brian Wisenden

Hosts that can avoid or minimize exposure to parasites will be competitively superior to hosts that acquire heavy parasite loads. In this experiment, we studied fathead minnows and their risk of infection by various trematode parasites in a field population in Shoe Lake, MN. First, we conducted a population survey of trematode fauna in fathead minnows. We then tested if two sides of a small peninsula in a prairie pothole lake that differed in wind

exposure, and potentially microhabitat favored by snails (intermediate host of the parasites), created different levels of risk of parasitism to minnows. We also tested if fish in groups had a different risk of parasitism than solitary minnows. We placed mesh boxes containing either one or a group of five parasite-free minnows along the shore line of each side of a peninsula in Shoe Lake, MN. We removed the fish and brought them back to the lab for necropsy. We found that grouping had no effect on parasite load, but minnows on the lee side of the peninsula acquired significantly more parasites than minnows from the exposed side of the peninsula. This finding shows that minnows can behaviorally reduce their risk of parasitism through habitat selection.

Cassandra Anderson, Christina Poudyal

Developing an Accurate qPCR Method for Determining the Genotype of Genetically Modified Maize.

Advisor: Chris Chastain

In the days of genetically modifying living organisms, it is becoming increasingly crucial to know the number of inserted genes in the genetically modified (GM) plant. We are developing a quantitative Polymerase-Chain-Reaction (qPCR) method for determining the number of transgene copies in GM maize. We began by isolating genomic DNA from GM maize using an organic solvent extraction method. We then adapted a commercially available human genome qPCR analysis (Applied Biosystems & Trade) to determine the transgene copy number in the GM maize. A mathematical formula was used to convert the raw qPCR data for the marker gene and a calibration gene in to the raw gene copy number in the sample, and those values will be used to determine whether the plant is haploid or diploid for the transgene. The standard method, the Southern blot, will be done with the genomic DNA as a check to be sure that the qPCR results are accurate. If necessary, adjustments will be made to the qPCR method to get the true genotype. The results of these essays will show the true genotype in the GM maize plant in a fraction of the time required to do the southern blot.



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Chan Yang Park

Effects of Increased Nitrogen in Brassica Rapa on Pieris Rapa Larvae

Advisor: Rebecca Andres

Nitrogen is a nutrient and is very important for plants and animals to grow and stay healthy. Plants and animals must obtain nitrogen from outside resources in order to grow. Insect growth, in particular, is facilitated by nitrogen and varying amounts of nitrogen may affect that growth. This experiment will measure the effect of increased nitrogen content on *Pieris rapae* larvae (Cabbage White Butterfly). Cabbage white larvae will be fed on *Brassica rapa* plants (Fast Plants) grown with two different levels of nitrogen. We are testing this on fast plants and cabbage white butterflies because of their short generation time, which makes them good model organisms. Miracle-Gro fertilizer, which contains 20% nitrogen, will be used to manipulate nitrogen content. Larval growth will be determined by measuring body mass and length over time. Leaf area measurements will be taken before feeding and five days after feeding to determine the amount of plant material consumed. Moreover, the leaf nitrogen content will be measured. We expect cabbage white larvae to grow faster, fatter and longer when more nitrogen is available from their food, as other studies have shown. The final results will be presented at the Student Academic Conference.

Courtney Constantini

Creating a DNA Barcoding System for Identification of Lesser Known Species of Bee

Advisor: Sara Anderson

Over the past decades, various species of bee have been under scrutiny by researchers. This is due to the fact that nature's most important pollinators have been declining rapidly. In order to understand why this happens, researchers have developed a system of identification processes, including DNA barcoding, to track various species. Since many species of bee are phenotypically difficult to identify, DNA barcoding has become a widely used system of identification. Although many bees can be identified using this barcoding system, it is estimated that 70 percent of the 20,000-30,000 species of bees do not have an accurate method of identification. My research focuses on developing and streamlining a process for DNA barcoding that allows identification of lesser known species of bee. We must first isolate the

DNA from extractions. We will use our modified PCR protocol to amplify the barcoding section of DNA. Once that is accomplished, we will be able to send the data off to be sequenced. The sequences will be compared to published sequence data using bioinformatics tools to assign species identification. We will test the reliability of barcoding against expertly identified bees to evaluate the accuracy of this method in native bees of tall grass prairies.

Emily Mammenga

Familial Odor-Tracking by Larval Fish

Advisor: Brian Wisenden

Parental care is unusual among fish, but common among fish in the cichlidae family. Convict cichlids form monogamous pair bonds and have bi-parental care of their free-swimming young for up to six weeks. During this time, parents cooperate in the defense of the young against brood predators. If the young are separated from their family, they must quickly find their way back to avoid being eaten. We tested the ability of larval fish to use chemical cues to orient toward their family. Previous research showed that they could orient to chemical cues from their home aquarium, which are comprised of the odors of the parents, their siblings and the gravel in the tank. In this experiment, we tested if they can orient toward the odor of an individual parent, if they can distinguish between their biological parent and an unrelated parental adult and if they can distinguish between an unrelated parental adult and an unrelated non-parental adult.

Emma Onyancha, Katelyn McMahan

*Molecular Biology Techniques Applied to Paternity Testing Reveal Reproductive Success in *Poecilia Reticulata**

Advisor: Sara Anderson

The way animals select a mate varies greatly. Female animals can select for behavioral, physical and chemical characteristics. In many, the female's preference for a certain color is clear. In guppies mating behavior can be complex and can be based on a variety of factors. Female guppies often select for brightness of color. Using color selection as a potential mating preference, female guppies were given the choice between a blue male and an orange male. Since mate selection cannot be directly observed when a female is given the choice between two males genetics,

testing was necessary to prove parentage in the guppy kin. Paternity of the guppy offspring will be proven using multi-locus micro satellite genetic data. Reproductive success will be analyzed to answer the question of whether females prefer a blue or an orange male.

Eryn Anderson, Janelle Iwen

Illegal Species Trade and Its Effects on Costa Rican Biodiversity

Advisor: Brian Wisenden

Illegal animal trade has become a problem in ecosystems around the world. Demand for exotic plants and animals have driven people to take them from their natural habitat to sell in developed countries. Trade like this is much more prevalent in tropical regions with high biodiversity, such as Central and South America. Costa Rica is one of the more heavily impacted areas. In order to discover the greater implications of this trade and its effects on the local ecosystem, we will be traveling to Costa Rica to conduct field research. By combining our research with that of experienced biologists, we will gain a greater understanding of how to combat this problem.

Evangeline Holley, Kaitlyn Ludwig

*The Effects of Diet on Exploratory-Boldness Behavioral Syndrome in Zebra fish (*Danio rerio*)*

Advisor: Brian Wisenden

As in humans, animals also show personality, termed a behavioral syndrome, which are defined as correlated traits expressed over multiple contexts. For example, exploratory-boldness behavioral syndrome determines how bold or shy a zebra fish will be. Shy and bold tendencies each have positive and negative fitness consequences in different situations. Past research has shown that exploratory-boldness behavioral syndrome in zebra fish is inherited as an epigenetic maternal effect, but not much is known about which environmental factors affect the expression of shy-bold in offspring. We attempted to determine if changes in diet could affect exploratory-boldness behavioral syndrome in zebra fish by manipulating the diet of a group of zebra fish, and testing their relative exploratory-boldness both before and after these diets.

Harrison Pantera

Elucidating the Controlling Role of the Pyruvate Phosphate Dikinase Regulatory Protein on C₄ Photosynthesis

Advisor: Chris Chastain

Pyruvate phosphate dikinase (PPDK) is a C₄ photosynthetic pathway enzyme that converts pyruvate to PEP, the substrate for CO₂ fixation in C₄ leaves. PPDK activity is regulated in response to light intensity to ensure the PEP synthesis rate is in balance with the amount of light energy incident on the leaf. Light regulation of PPDK occurs by reversible phosphorylation of an active-site Thr. A bifunctional protein kinase/phosphotransferase, the PPDK regulatory protein (PDRP), catalyzes this reversible phosphorylation. Although the biochemical properties of PDRP are well known, its role in overall C₄ cycle regulation in leaves is unclear. Our approach for resolving this question entails creating PDRP-RNAi transgenic knockdown maize lines for assessing the interdependence of C₄ photosynthesis and PDRP-PPDK regulation. The first phase of the study involved isolation of homozygous PDRP knockdown T2 maize lines. This was accomplished using PCR and qPCR based screening. A total of 22/134 T2 plants were found to be homozygous for the PDRP-RNAi transgene. A subset of these T2 plants was analyzed for leaf PDRP transcript abundance via Taqman based qPCR assay. This revealed a 5-50 percent suppression of PDRP transcript versus Wt. Western blot analysis of leaf extracts showed a corresponding decrease in PDRP protein. Lines showing severe PDRP suppression developed chlorotic leaves and failed to reach maturity, suggesting PDRP is required for optimal C₄ PS.

Jacob Schafer

Why Are Escherichia Coli Catheter-Associated UTIs One of the Most Common Healthcare-Associated Infections?

Advisor: Kathryn Wise

Urinary tract infections (UTIs) are one of the most common health care-associated infections (HAIs). The bacterium most often associated with these types of infections is E. coli. UTIs are very likely to occur in hospital and nursing home environments when a patient is put on a catheter. There are numerous factors associated with E. coli that allow it to be such a common cause of UTIs. Poor health care practices and unsanitary environments are blamed when a patient develops a UTI. This, however, is most

often not the case. This project aims to give an overview of the virulence factors and conditions that may contribute to the development of catheter-associated urinary tract infections by E. coli, and the best possible methods for preventing such infections.

Jamie Naasz, Jeremy Levenhagen

Comparing Cultures

Advisor: Brian Wisenden

On our upcoming trip to Costa Rica, we intend to observe and compare some of the many differences between their culture and our own. Among these differences will be the local cuisine, the way people interact with each other, and the way shops and business are organized and ran, but perhaps the most obvious differences are the buildings. From the architecture and design down to building materials, we expect the buildings to vary greatly from what we are used to seeing. Our experiment will be conducted almost solely using observation.

Jayanti Tripathi

Management of Diabetes Mellitus Type II by Adopting a Healthy Lifestyle

Advisor: Shireen Alemadi

Diabetes mellitus type II (T2BM) is also known as insulin-independent diabetes mellitus or adult-onset diabetes. This disorder is characterized by increased level of blood glucose resulting from the combination of resistance to insulin action, inadequate insulin secretion and excessive glucagon secretion. In 2004, an estimated 3.4 million people died from consequences of high blood sugar. The prevalence of Type 2 diabetes mellitus is increasingly at an alarming rate, presumably due to increases in sedentary lifestyle and obesity. The major risk factors include weight, fat distribution, inactivity, genetics, race and age. People with Indian, Pacific Islander or Australian Aboriginal heritage are at particularly high risk of developing Type 2 diabetes. In the United States, Canada, and Europe, about 90 percent of all people with diabetes have Type 2 diabetes. Another 10 percent have a pre-diabetic condition called impaired glucose tolerance, and about a third of these patients will go on to develop overt diabetes within 10 years. T2BM cannot be cured but one can manage the condition by eating healthy food, physical exercise, losing excess weight, regular checkups and,

sometimes, medication. Also, healthy lifestyle choices can prevent or delay the progression from pre-diabetes to diabetes.

Jenae Olson, Danielle Anderson, Tori Schwab

Hermit Crabs of Costa Rica

Advisor: Brian Wisenden

During the span of one day, we will collect 20-30 hermit crabs at the same beach site and have them measured for their claw size and shell type. After measurements and shell types have been recorded, hermit crabs will be released back to where they had been originally found. We will do our analysis back at MSUM. For the results, we expect that the larger the hermit crab claw, the larger the shell type will be.

Julia Goroski, Ryan Rothstein, Chelsea Schmaltz

Sequencing the Sweet Taste Gene, Tas1R2, in Carnivora

Advisor: Anderson, Sara

We will be sequencing a gene of Carnivora and Primata to find if they possess the functional or pseudo gene of Tas1R2, one of the several genes responsible for sensing sweet tastes. We will then analyze the sequences using bioinformatics tools, allowing us to compare the similarities and differences in the gene between subjects. In previous tests, obligate carnivores like cats, have shown no preference for sweetened nutrients over unsweetened ones, while other carnivores and omnivores such as dogs, bears and rodents have. Deletions and mutations occur in the feline Tas1R2 gene to make it a pseudogene, a gene that exists but does not produce a functional protein. We hope to answer whether or not the sequences for this gene are different between organisms.

Kayla Sluka

Establishing Trophic Positions of Benthic Invertebrates Using Stable Isotope Analysis

Advisor: Daniel McEwen

When an organism eats another, the nutrients found within the prey's body are broken down and absorbed for use in the predator's body, or excreted. Two elements that regularly cycle through organisms are Carbon and Nitrogen – both commonly used in stable isotope analysis. Stable isotopes can be determined experimentally and the values can be used to create a food web. Samples were taken at Voyageurs National Park to create a food web



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of benthic invertebrates. Stable isotopes can be useful for understanding feeding patterns, nutrient distribution and ecosystem health. This work's primary goal is to produce a food web usable for other related research. Another concern that will be addressed is if the size of the invertebrate correlates to a different stable isotope value regardless of the fact that they are the same species. This is important for understanding the complexities of size-related feeding patterns.

Kristin Wittman, Jaclyn Kuklock, Ashlyn Kuklock, Amie Nowacki, Jaime Kallstrom, Kara Nygaard, Chelsea Schmaltz
Urban Turkeys: Survey of Wild Turkey Distribution and Numbers, Human-Turkey Interactions, and Public Opinion in the Red River Valley in Cass (North Dakota) and Clay (Minnesota) Counties (2003-2012)
Advisor: Donna Stockrahm

This study started in 2003 with the objective of using mail surveys to estimate the minimum wild turkey (*Meleagris gallopavo*) population in the Red River Valley (RRV) in the Fargo/Moorhead area. The RRV offers a suitable turkey habitat in a relatively narrow corridor surrounded by a dense human population. In 2004, urban-turkey interactions were monitored, along with an additional survey in 2005 to assess public opinion on wild turkey management options. Turkey observations reported from 2003 through 2012 show a strong population thriving in the RRV, which seemed to be on a sharp increase from 2003 through 2007. The population estimate then appears to drop slightly and plateau in recent years. Public opinion in years 2010, 2011 and 2012 states that turkeys do not cause problems on their land, however problematic turkeys should be relocated, and there should be a hunting season established on the birds. This year's (2012) return rate amounted to 42.4% (84 out of 198) of surveys sent out to area observers. The opinion and observation surveys are planned to continue throughout the upcoming years.

Kristin Wittman, Jaclyn Kuklock, Ashlyn Kuklock, Angela Kooren, Amie Nowacki, Emily Jorgenson, Ryan Schmit, Jaime Kallstrom, Kara Nygaard, Chelsea Schmaltz
The Efficacy of PIT Tag Use in Painted Turtles
Advisor: Donna Stockrahm

In a long-term study from 2001-2012, more than 800 painted turtles (*Chrysemys picta bellii*) have been trapped live in Clay County, Minn., to study growth rates, survival, population characteristics and movements. From 2001-2010, we live-trapped in two sloughs approximately 1 kilometer apart; in 2011 and 2012 respectively, we included a third slough roughly midway between the original sloughs. Turtles were weighed, sexed, measured, marked by scute notches and released on the shoreline of the slough of capture. In 2006, we began inserting PIT (Passive Integrated Transponder) tags into the abdominal cavity of all captured turtles judged to be large enough, while notching the scutes. Our purpose for the portion of the study presented here is to evaluate the use of PIT tags in painted turtles. During the seven-year period (2006-2012), we had more than 1,800 captures of 403 PIT-tagged turtles (29 were tagged in 2012). PIT tags did not seem to cause mortality or impair the turtles in any way. In fact, 16 males and 13 females were captured during the seven-year-span and 15 additional males and 18 additional females were captured over a six-year-span. Not counting the 29 turtles tagged in 2012, 57 percent were captured during multiple years. Several turtles were captured 39 times, and tagged females were noted laying eggs in nearby habitats. We found that PIT tags were vastly superior to using only scute markings for individual ID, since scute notches were often damaged over the years and easily misread. When properly inserted, PIT-tag rejection was essentially nonexistent. The frigid Minnesota winters did not damage the tags. In summary, our data indicate PIT tags are excellent for long-term studies in painted turtles and probably other turtles as well.

Kristin Wittman, Jaclyn Kuklock, Ashlyn Kuklock, Angela Kooren, Amie Nowacki, Emily Jorgenson, Ryan Schmit, Jaime Kallstrom, Kara Nygaard, Chelsea Schmaltz
Do Painted Turtles Utilize "Nursery" Sloughs?
Advisor: Stockrahm, Donna

In a long-term study from 2001-2012, more than 800 painted turtles (*Chrysemys picta bellii*) were trapped alive in Clay County, Minn.,

to study growth rates, survival, population characteristics and movements. Captured turtles were weighed, sexed, measured, marked by scute notches (and PIT tags starting in 2006) and released on the shoreline of the slough of capture. From 2001 to 2010, we live-trapped in two sloughs approximately 1 kilometer apart and roughly 3 hectares and 6+ hectares in size. In 2009 and 2010, we noted a drastic decrease in turtle captures in our smaller slough, due to the introduction of cattle grazing around the slough in 2009. The area had previously been Conservation Reserve Program land. In 2011 and 2012, we trapped in a third tiny slough (approximately 1 hectare) halfway between the two original sloughs where cattle grazing had been excluded and the shoreline vegetation was intact. We wanted to determine if the marked turtles from the original sloughs, especially the smaller slough with surrounding cattle grazing, were moving into this undisturbed middle slough. In 2011, we were surprised to see very few captured turtles had come from the grazed slough whereas approximately three times as many turtles had come from the larger and ungrazed slough, even though a woods and hill separated this larger slough from the tiny, middle slough. The lack of vegetative cover from the cattle grazing might have been a deterrent for turtle dispersal to the middle slough. In 2011, we also noted one-third of the new turtles captured in the tiny slough were quite small, indicating this slough is perhaps a nursery slough. In 2012, the trend was again apparent. When combining data from 2011 and 2012, it appears that turtles less than 11 centimeters in carapace length in the tiny slough made up a surprisingly high proportion of the population compared to that of the two original sloughs. Comparatively low water depths (usually 1 meter), dense cattail shoreline habitat and small size might make this third slough attractive habitat for small turtles. Increasing water levels in all sloughs in this area might also be a further factor in changing habitat use by the turtles, making some sloughs less desirable habitat. We will continue to trap in all three sloughs to further investigate this changing habitat use.

Logan Hughes, Jordan Hanson, Natalie Gilles, Brittany Beers

Interdisciplinary Collaboration on a Virtual Carbon Cycle

Advisor: Alison Wallace

Carbon-based molecules are essential for life on earth. Carbon atoms cycle through almost every place on our planet, both living and non-living. The exchange of carbon can often times be difficult to understand, and many misconceptions exist. Through collaboration of the art, graphic communication and bioscience departments, our team has developed a carbon cycle simulation that will be available for anyone's use via the web. Our goal was to not only teach about the many places that carbon could exist, but that it is constantly transferring while remaining in a cycle. The development of this simulation is such that it may be useful for a broad range of students, from education and biology majors to students K-12. Individuals will be able to choose their own adventure as a "mock" carbon atom and along the way will be exposed to the details of each exchange. This is a "hands-on, minds-on" type of strategy that allows the student to discover the carbon cycle independently through an enjoyable and interactive way.

Neil Sloan, Katrina Jangula, Stephen Redding, Tiffany Larson

Chemical Olfaction Response by Goldfish to Digested and Undigested Alarm Cues by Medial Olfactory Tract

Advisor: Brian Wisenden

Fish use chemical cues to detect danger. The location of specific receptors for various chemical stimuli is not well understood. In this study we propose to see which olfactory tracts goldfish use to detect chemical cues released directly from injured skin of members of their own species, or chemical cues of their own species that leak out of the intestine of a predator. The area of study that we will conduct is to test if the MOT (medial olfactory tract) is used to detect these cues. We will compare the behavioral response of goldfish with MOT severed against a sham surgery (cranium opened but olfactory tracts left intact) to determine if dietary alarm cues are communicated to the olfactory bulb by this tract to detect chemical cues from a predator's diet. If so, then it is likely that the chemistry of goldfish alarm cue is unchanged by the digestion process of pike. This study will be useful in a few different

areas, such as aquaculture, and the use of scents to stimulate a reaction from fish.

Pitigala Lakshan, Chan Yang Park, Claire Shive

The Effects of Atmospheric CO₂ and Nutrient Levels on Plant-Herbivore Interactions

Advisor: Alison Wallace

Scientists are concerned about rising CO₂ levels and their potential impact on our natural and managed ecosystems. In our study, we focus on how the increase in CO₂ can impact the growth of plants grown at different nutrient levels and the growth of the herbivores that feed on them. The species we are using are Brassica rapa (Wisconsin fast plants) and Pieris brassicae (Cabbage White Butterfly) larvae. Plants were grown for two weeks at 400 and 600 ppm and high and low fertilizer levels in controlled environments. Larval growth rates were measured over a period of five days.

Prastuti Ghimire

Development of Cross Species Amplification of Multiple Loci

Advisor: Sara Anderson

Native bees serve a vital function in the landscape through pollination of native and agricultural plants. They increase diversity in plants. However, recent studies of bee populations show that they are declining in number. As a result of this, the services provided by these bees may also be decreasing. The bee that is being studied is Halictus confusus. They are generalists and help pollinate several plants in different habitats. Data have been and are currently being collected that will help clarify the genetic diversity that exists in these bee populations. The results will also help to distinguish between individual bees. Data describing five loci have been gathered. This will further help in quantifying the number of genetic markers that are necessary in distinguishing between individual bees, which is an important step in studying genetic variation of bee populations. To gather this data, PCR optimization is being done to obtain data that are accurate and consistent across samples.

Rachel Walsh

Developing a Microsatellite Library for Halictus Confusus

Advisor: Sara Anderson

This research project aims to develop a microsatellite library for the native bee species, Halictus confusus. Microsatellites are repetitive sequences of DNA bases that occur throughout the genome. The number of microsatellite repeats in individuals varies, allowing individuality to be distinguished. In order to develop a microsatellite library for H. confusus, several molecular biology laboratory techniques must be employed. Steps include DNA isolation and purification, restriction digests, ligations, PCR, running agarose gels, molecular cloning and sequencing. Once a microsatellite library is completed, further research can be conducted on the species by using population genetics to compare bee populations, leading to a better understanding of the diversity between different populations of Halictus confusus. Through population genetics, we can develop a better understanding about the bee's behavior, for example, how they are dispersed throughout the landscape, what their travel distances are, and answer questions as to how genetically similar or different the populations are. A microsatellite library is the essential step toward the ultimate population genetics goal.

Andrew Larson, Ryan Schmit, Graduate student

Using Microsatellites to Examine Chironomid Dispersal

Advisor: Sara Anderson

Non-biting midges, from the family Chironomidae, serve as food sources for many animals in some environments. In the Arctic, chironomids are the main forage for migratory shorebirds, such as the red-backed sandpiper, which have seen a decline over the last few decades, correlating with earlier warming of natal pools, resulting in an earlier emergence of chironomids. Our study will be focusing on microsatellites in the DNA of Chironomus dilutus. We will be looking at the population genetics to find out whether the midges complete their life cycle (through adulthood) in their natal pool or if they disperse. We want to discover how much gene flow occurs between pools. We are in the beginning of a pilot study, currently optimizing reaction conditions for five microsatellite loci.



Isaac Heiser, Ryan Schmit

A Comparative Study on Forest Reclamation

Advisor: Brian Wisenden

In order for rainforests to survive, there has to be some effort put forth into forest reclamation. In Costa Rica, data will be collected from both the old growth forests and the reclaimed forest. Animals will not be considered within this project due to tendency to have wide ranges. Plant diversity and abundance will be compared between the two types of forest. Through this collection of data, it is hoped to show a relative timeline demonstrating the regrowth of a reclaimed forest, 50 years after the project was established. The comparative data will be analyzed for various other contrasts, such as diversity, height of climax species within each environment, density and species diversity upon the forest floor, and various other possible ideas.

Swojani Shrestha, Tapan Hamal

Detection of Gene Copy Number Changes in Transgenic Maize Plant Using Real Time Quantitative PCR and Southern Blot; A Comparative Study Between the Two Methods

Advisor: Chris Chastain

Medicine and agriculture rely on methods that can detect the ploidy of a given gene in a genome. The main aim of this project is to find a protocol for tracking the genotype of transgenic maize with respect to a specific gene copy number. Two methods, qPCR and Southern blot are used to produce results and to find the effectiveness of one over the other. Southern blot method is a conventional way of detecting a specific DNA sequence of a gene for e.g. deletions and amplifications of a gene in a large and complex DNA sample. Recently, real time quantitative PCR has been a good and accurate method for detection of gene copy number per genome (haploid or diploid copy number). Our project is a comparative study of these two methods for analysis of transgenic genotype of maize plants.

One aim of this project is to identify maize plants that are homozygous for an RNAi transgene. For the fulfillment of this aim, we are using a qPCR method that stimulates the strategies of Applied Bio-Systems human gene copy number assay. We first isolated genomic DNA from genetically modified maize leaves to be used for qPCR and designed a fluorescence probe to target a native and a transplanted maize gene. The data was then subjected to qPCR using an optical

thermocycler. The data from the instrument was converted to gene copy number using a mathematical formula. These results will be presented showing the reliability of the qPCR vs. the Southern blot method.

Tyler Franklin

High Density Domestic Food Production Through the Use of Aquaponics

Advisor: Andrew Marry

Conventional agriculture, specifically the dependence of synthetic fertilizers on massive mono-cropped fields located thousands of miles away from the consumer, will inevitably fail. Ever increasing scarcity of fossil fuels is directly related to a substantial increase in fossil fuel derived fertilizer and transportation costs. These methods of agriculture ignore natural ecological principles and pollute the environment in exchange for financial profits. As the cost of fossil fuel derived resources rise, our economically driven world will search for alternative solutions. One alternative food production solution is the use of aquaponics, a small-scale method of high-density food production that incorporates the symbiotic cultivation of plants and aquatic animals in an ecologically balanced circulating environment. The result is high nutrition fruits and vegetables plus a reliable source of protein, while drastically reducing the amount of required water and fertilizers. I will be demonstrating the aquaponics system I designed and constructed in the MSUM greenhouse, and give compelling arguments supporting a widespread domestic use of similar systems as a sustainable alternative to the inadequate and destructive conventional methods of food production and agriculture.

Matthew Powell, Tyler Franklin

Plant-Animal Pollination Interactions Within Tropical Forests of Costa Rica

Advisor: Brian Wisenden

Interactions between species within an ecosystem form a complex web, connecting every life form. The interactions are vital to the health of a habitat and species survival. In the tropical forests of Costa Rica, astonishing biodiversity leads to an almost infinite number of co-evolved species-to-species interactions. This is especially true in the interactions of plants and animals. Both have evolved numerous mechanisms to survive within a specific niche, such as species-

specific pollination interactions. During our time in Costa Rica we will study plant-animal pollination interactions to show the importance of maintaining these interactions within habitats to conserve an ecosystem's biodiversity.

CHEMISTRY

Alexander Novak

Hypoxia and the Sodium Hydrogen Exchanger in Non Small Cell Lung Cancer

Advisor: Joseph Provost

The challenge of hypoxia in solid tumors induces several physiological changes in the cancer cell microenvironment, including increased extracellular acidity. While proton exchangers, including the sodium hydrogen exchanger (NHE1), support tumor cell invasion and metastasis, the relationship between hypoxia and increased acidity on migration/proliferation remains unclear. In this study, we investigate the relationship between the sodium hydrogen exchanger isoform 1 (NHE1) and hypoxia inducible factor 1 (HIF-1 α) expression in H1299. HIF-1 α expression was observable after 24 hours in either 1 percent oxygen or chemically induced hypoxia and was maximally expressed after 72 hours of hypoxia. In parallel we found that NHE1 expression slightly increased after 72 hours in hypoxic conditions. Meanwhile, we show that hypoxia decreased cell proliferation in H1299 non small lung cancer cells. The impact of NHE1 inhibition on hypoxia induced MMP-9 activity was altered. Hypoxia-induced changes in cell motility and alkalization of intracellular pH was also observed. These results point to a relationship between hypoxia and NHE1 that influence cancer cell behavior. NIH Grant 1 R15 HL074924-01A1

Ashley Eder, Constance Anderson

Active Chemical Display Cases: Doing Experiments in Public

Advisor: Jeffrey Bodwin

Display cases offer an opportunity to engage students and the general public in the academic mission of Minnesota State University Moorhead. Often, these display cases contain static information that does little to engage passersby. This research project involves development of a number of active chemical demonstrations and experiments to make the display cases more engaging and interesting.

Procedures, theory and results of these display experiments will be presented in the paper.

Clarice Wallert, Scott Buchholz

In Vivo Quantification of CHP-NHE1 Interaction

Advisor: Joseph Provost

Calcineurin B homologous protein isoform 1 (CHP1) is expressed in nearly all types of human tissues. Calcineurin B homologous protein isoform 2 (CHP2) is primarily expressed in cancer cells. CHP1 and CHP2 are essential cofactors for the Na⁺-H⁺ Exchanger isoform 1 (NHE1), a key protein involved in the transformation of a normal tissue to a malignant tumor. We will use a series of lung fibroblast cells, each expressing a different level of NHE1. PSN cells over-express NHE1, while PS120 fibroblasts do not express NHE1. Thus, these two cell lines are used as positive and negative NHE1 binding controls for CHP1 and CHP2. The aim of this study was to determine the nature of CHP1 and CHP2 binding to NHE1. By transiently transfecting cells with a GFP-CHP fusion protein, we will assess and measure the location of CHP in cells with and without NHE1 expression. This work will determine how the mechanism CHP1 and CHP2 interact with NHE1 and how this interaction affects cell proliferation and migration.

Jennifer Dobis, Devon Sheldon

Measuring the Interaction Between Calcineurin Homologous Protein Isoforms with Sodium-Hydrogen Exchanger Isoform 1

Advisor: Joseph Provost

The purpose of the study was to determine the binding affinity of calcineurin B homologous protein 1 (CHP1) and calcineurin B homologous protein 2 (CHP2) to the sodium-hydrogen exchanger isoform 1 (NHE1). NHE1 is a ubiquitously expressed ion exchanger located in the plasma membrane of epithelial cells. NHE1 is involved with cell movement, differentiation and proliferation. CHP is part of a calcium-binding protein subfamily located in the plasma membrane and cytoplasm around the nucleus. CHP1 functions to activate NHE1 and increase NHE1's intracellular pH sensitivity. CHP2 has been reported to bind NHE1 at a higher affinity than CHP1, and increase the exchange activity of NHE1 to be proliferative and aggressive, and is associated with tumor cell invasion. Six recombinant proteins were created to study the

effects of CHP binding to NHE. These affinity tagged proteins have been optimally expressed using E. coli expression systems to be grown at 37°C to an optical density between 0.6-0.8, induced with 0.1mM IPTG at 20°C for His-CHP1-RFP, His-GFP, His-CHP2-GFP (plus glucose), GST, and GST-NHE1 for 12-16 hours, and 0.5mM IPTG at 37°C four hours in duration for His-RFP. The fusion proteins were then purified with affinity column chromatography. A plate-based assay will be developed and validated to measure protein-protein interaction between CHP and NHE1. CHP2 binding at a higher affinity than CHP1 may increase NHE1 proliferation and movement to increase tumor cell metastasis.

Jessica Langlais, Susan Bertrand

Synthesis of Novel Fluorinated Borohydride Reducing Agents

Advisor: Gary Edverson

The fluorinating agents BF₄⁻ (tetrafluoroborate) and HF₂⁻ (hydrogen difluoride) were reacted with BH₃CN⁻ (cyanoborohydride) and BH₄⁻ (borohydride) in an attempt to prepare fluorinated borohydride anions via exchange reactions. These reactions were performed either at atmospheric pressure in refluxing tetrahydrofuran or in a sealed vessel at 120°C. Reactions at atmospheric pressure proceeded slowly and did not yield appreciable amounts of fluorinated borohydrides. Reactions in sealed vessels appeared to go to completion when characterized by ¹¹B NMR spectroscopy, but the products decomposed during the analysis. Based on the observed hydrogen evolution during this decomposition, it is likely that the desired fluoroborohydride has been prepared. Further experimental results and characterization of products will be reported.

Kaila Ornquist, Adam Amiot

Preparation of 1-{2-[bis(phenyl)boryl]benyl}-2,2,6,6-tetramethylpiperidine

Advisor: Gary Edverson

Frustrated Lewis pairs have been shown to be able to activate small molecules such as H₂. The previously unprepared title compound has been calculated to do this at lower temperatures than similar known frustrated Lewis pairs. Preparation of the title compound was carried out by modifying a published synthesis for a closely related compound. Results of the synthesis and characterization data will be reported.

Molly Gareis

Mitosis Lesson Plan Using the 5E Model

Advisor: Richard Lahti

Inquiry based learning is a style of teaching that allows students to discover concepts through discovery. The 5E model lesson plan allows this method to be utilized in any type of classroom. By allowing students to engage in, explore, explain, elaborate and be evaluated on the material, concepts are uncovered by students instead of provided by a teacher. By using a 5E model, the common misconceptions that often accompany topics taught in a traditional style of lesson plan can be revealed and addressed. In this specific lesson plan, students will learn about the relationship between cancer and mitosis through a variety of activities and instruction. The lesson introduces a relationship through an engaging activity, allows students to explore the topic through a hands-on simulation, and gives students the opportunity to discuss and explain their new knowledge to their peers. Students will then be able to elaborate what they have learned about cancer and apply it to real life. Providing students with the opportunity to learn science through inquiry provides a deeper understanding of content and engages students in the material they are studying. This style of learning is one that leads to a more positive and effective learning experience for students.

Nicholas Berthelsen

RhoA Kinase Phosphorylation of NHE1 Impact on Growth Factor and G Protein Coupled Receptor Signaling

Advisor: Joseph Provost

The sodium hydrogen exchanger (NHE1) plays a role in intracellular pH homeostasis and acts as scaffolding anchor for a diverse set of proteins. The extended carboxyl terminus is phosphorylated by seven known protein kinases. Phosphorylation site of NHE1 by RhoA Kinase (Rock) was recently defined and found critical for a number of cellular functions. However, the impact of Rock phosphorylation on NHE1-related signaling by a range of agonists has not been determined. Here we examine three different signaling pathways and the role Rock phosphorylation of NHE1. Using stably expressing tagged NHE1, we identify proteins co-immune precipitating with NHE1 in control and agonist stimulated cells. Cellular function of adhesion and proliferation is also presented. Finally the influence of Rock



phosphorylation of NHE1 on cellular migration was determined for three signaling pathways using an impedance-based assay.

COMMUNICATION STUDIES

Chayane Hale

If I Were a [Insert Gender Here]: From Minnie Bruce Pratt to Beyonce, Challenging and Developing the Public Definitions of Gender

Advisor: Rebecca Gardner

This presentation compares the essay “Gender Quiz,” by Minnie Bruce Pratt, and the song “If I Were a Boy,” by Beyonce. Both artifacts challenge the public’s conventional definitions of gender roles, but in different time periods, facing different levels of adversity. In “Gender Quiz,” Pratt, who was born in 1946, describes growing up in an environment where questioning gender is not acceptable. However, despite those restrictions, she describes in the essay how she was not the only member of her small community to come out as homosexual, questioning sexuality and gender. Years later, in the late 2000s, Beyonce released “If I Were A Boy,” which strongly and openly challenges gender roles by describing women behaving as men traditionally would. While Beyonce wasn’t necessarily trying to make a point with questioning gender, it’s much more acceptable to do that now than it was for Pratt.

Hiu Tung Chan

Why They Don’t Understand Me

Advisor: Theresa Hest

I am an international student, and English is my second language. Sometimes my friends here don’t understand what I am saying. As a diplomat, I found out there are students having problems communicating with Americans. It is partially because of the numerous languages from different parts of world. I want to talk about language and communication between students of different cultures. I will begin my presentation with an informative speech completed in my CMST100 class. I will talk to different international students about their home languages and what they think about talking to Americans. On the other hand, I will also learn what Americans think about communicating with international students. I will also research by reading material written

on this subject. I hope that, after conducting this research, I will understand more about communicating with different people all around the world. Communication is not only to connect with people around you, but also to connect with people from different communities if they know how to deal with culture and language challenges.

Jessica Wierzchowski

Protecting the Wolf

Advisor: Merrie Holtan

Wolves are a “keystone” species that naturally help regulate the populations of other animals and plants through a chain of events. Due to later hunting seasons that allowed wolves to be hunted in certain states, it is vital to educate people about the importance of wolves in the ecosystems in which they were originally found. One of the reasons cited for killing wolves was environment protection. However, there are more direct methods to protect the environment, other than hunting wolves. After the subject is discussed, the audience may consider donating to environmental protection agencies, such as Defenders of Wildlife, and support laws that protect our environment.

Karl Johnson

Leadership Experiences Examined Through The Social Change Model Lens

Advisor: Jason Anderson

Because many universities tout the benefits of involvement in leadership programs during one’s college career, I will explore the Dragon Leadership Program at Minnesota State University Moorhead. Part of the Office of Student Activities, the role of this program is to foster, build upon and highlight the leadership qualities and skills of MSUM students. The theoretical framework for the program is the Social Change Model of Leadership, which incorporates cognitive complexity, knowledge acquisition, humanitarianism, civic engagement, intrapersonal/interpersonal competence, practical competence, as well as persistence and academic achievement. Twenty-one learning outcomes are facilitated throughout a three-phase process, requiring active participation and action. I will describe my experiences with the activities and examine the reflection components in each of the phases of the program, using the lens of the Social Change Model to provide an in-

depth investigation of the leadership program’s learning outcomes and the means by which they are achieved. Overall, this project aims to create a better understanding of the Dragon Leadership Program’s learning outcomes by examining one student’s experience in the program.

Meghan McLaughlin

Stepping Away from Creativity

Advisor: Merrie Holtan

Creativity is something we are all born with. Children use creativity to solve problems. After childhood, most people lose the creativity they once had. An explanation for this is that we are educated away from creativity. We take steps away from creative problem solving while being taught toward a test at school. We are losing the opportunity to problem solve in our schools. Since we teach toward tests, we skew the concept of failure. Failure is thought of as a negative concept, but in reality, we can learn so much from failure. Stepping away from creativity is a serious issue in our modern times. We are in need of creative problem-solving individuals for the workforce, and we need creativity back in schools. Taking steps away from creativity is taking steps away from the unknown future.

Yalonda Nelson

Media’s Effect on Women’s Identity

Advisor: Rebecca Gardner

This presentation focuses on how media reinforces notions on how women should look, act and feel about themselves. Advertisements come out every day that portray women in certain gender roles, which contribute to the way women construct their own identity. Advertisements have shown women to be the housewife, mother and cook in society. This presentation will look at popular advertisements from the different eras and compare them to today’s media. It will mainly focus on how gender roles are still applied to today’s media. Women are starting to have lower self-esteem due to the body image that the media has constructed. Big companies have portrayed women as sex symbols to sell products and have created an image of what a woman should look like. The reason this focuses on identity is because advertisements have taught women the gender roles they should have, the size they should be, the clothes they should wear, the jobs they should have, and the way they should live in this society. This is their identity,

and studies have shown that it is starting to impact the way women feel about themselves.

COMMUNITY HEALTH

Eva McClain

Increasing Diabetes in China and Its Impact
Advisor: Nandita Bezbaruah

Chronic disease is increasing at a global level. Diabetes is one of the most prominent of these conditions. Though diabetes is becoming a worldwide epidemic, China's battle with the condition is unprecedented. More alarming than the present incidence rate, is the disease's growth pattern in China. Though the country's wealth is increasing, the economic impacts of diabetes, such as cost of medications and medical complications, are crushing. Social and cultural heritage are being lost within the country's evolution. This paper discusses why these changes are occurring and how it is affecting the people and their future. Peer-reviewed articles and studies were used for data and as sources of background information. Research revealed that China's diabetes growth rate is largely due to cultural changes that have increased disease risk factors. There has been a shift from traditional Chinese lifestyle to that of an industrialized hub that feeds into the global economy. Condensed cities and urban job markets have caused increases in fresh food prices and made convenience foods more available, significantly driving up the number of people eating processed foods. Sadly, this has the most effect on lower income brackets because processed foods are more affordable. Industrial work environments also decrease activity levels, and sedentary lifestyle is one of the greatest risk factors for diabetes. As a result of the information gathered, key interventions are proposed that drive at the heart of the problem's cause.

COUNSELING AND STUDENT AFFAIRS

**Elexa Byler, Chandni Patel,
Katherine Van Haren, Benjamin Taylor**
NVU: Straight Alliance

Advisor: Karim Ahmath

Marriage Equality: There are 1,138 benefits, rights and protections provided on the basis of marital status in Federal Law that the same-sex couples who are married are denied. Even if same-sex couples are married under State Law, the marriage is not recognized under Federal Law (Human Rights Campaign, 2012). An example of one of these protections denied to same-sex couples is that a gay man with a life partner of many years may be forced to accept the financial and medical decisions of a sibling or parent with whom he may have a distant or even hostile relationship. The Minnesota Same-Sex Marriage Amendment, recognizing that marriage was solely between one man and woman, was recently voted down in the previous election (Ballotpedia, 2012). Recently a "Freedom to Marry" bill was introduced at the Minnesota State Capitol (Blotz, 2013). If passed, this bill will allow same-sex couples to be married under State Law. This group is forming a coalition of straight people standing up for marriage equality. As a group we will raise awareness about marriage inequality and inform people about what can be done to support marriage equality.

Iseunife Oyebanjo, Thuy Tran

*Why Are Multicultural Students Failing:
Who is Responsible?*

Advisor: Karim Ahmath

Poverty is an issue that has impacted the life of every American. However, the research shows that there is a disparity between how poverty impacts different populations in America if disaggregated by race (white, African American, Latino/as, Asian Americans and Native Americans). According to a study done by Feeding America (2011), sub racial groups of color are disproportionately affected by poverty, food insecurity and unemployment and are more likely to receive emergency food assistance than their white counterparts. In Minnesota, according to National Assessment of Educational Progress (NAEP) (2011), Reading

Scores for Minnesota Eighth Graders, only 14 percent of white students are suffering from literacy problems compared to 42 percent African Americans, 31 percent Latino/as, 33 percent Native Americans and 26 percent Asian Americans. This poster presentation will bring awareness to the attendees about the disparities of income as it relates to the Achievement Gap. National and state data will inform the discussion around the Achievement Gap.

Josey Fog

Activities Board: A New Event Planning Model
Advisor: Lisa Karch

Student involvement within a residential hall is key to successful event planning. Unfortunately, the initial purpose of Hall Council was not being met, thus creating a need for a different type of program to provide students with leadership opportunities within their residence halls. This project is the development of a new program called Activities Board. Activities Board provides students with the opportunity to be part of an event planning team and create large-scale programs within their respective residence hall. The research will show how this new plan has increased the number of programs planned per semester, allowed for an increase in student leadership opportunities, and allowed for greater student attendance throughout individual events.

Yi Chu, Katrina Brekke

*Diversity Endorsement Program Proposal
at MSU Moorhead*

Advisor: Donna Brown

Studies have shown that by having a significant understanding of diversity and culture, students can appreciate cultural pluralism and increase awareness toward social inequalities. Possessing this knowledge benefits individuals, as well as communities, and has the potential to cause positive changes in society. By researching examples from universities in the U.S., analyzing current organizational structure and programs of the institution, and conducting qualitative and quantitative research, this study examines the feasibility of implementing an optional "proficiency in diversity understanding" endorsement at MSUM.



ECONOMICS

Aminata Cissokho

Trade Policies: How Do Tariffs Operate Across Countries?

Advisor: Tonya Hansen

Trade policies unite trade partners and influence the growth potential of both developed and developing nations. Considered as one of the most restrictive trade policies, tariffs are taxes levied on products crossing national boundaries. Conybeare (1983) finds that national tariff levels express the restrictive effect of duties on trade flows. National tariffs often emerge as protectionist economic development policies or in response to historical events. Extending the research of Conybeare (1983) and Ray (1981), this research includes variables identified within four theories (international system, rational government economic actor, intergovernmental politics and interest group politics) in a linear regression to analyze factors determining tariff rates. Unlike previous studies, which focused on European, Asian and North American countries, this research uses the most recent trade data from a comprehensive collection of developing and developed countries to determine factors that affect tariffs over time and across countries.

Andres Batres

Road to Success: A Comparison of the NFL and La Liga Sports Leagues

Advisor: Tonya Hansen

Football and soccer are the most popular sports in the U.S. and world, respectively. Owners of National Football League (NFL) and La Liga Spanish soccer teams seek to maximize profit. This study compares how U.S. NFL and Spanish La Liga owners achieve profit maximization objectives under competitive and anti-competitive business models. The NFL promotes competition between teams using league salary caps and player drafts based on past performance. Conversely, La Liga teams possess individual budgets with no caps and face fewer restrictions relative to players' development, marketing and league influences. Irrespective of business model, a limited number of teams compete for titles in both leagues. This study uses regression analysis to determine the relationship between teams' budgets and winning percentages from 2001-2011.

Becky Boyd

Causes of the Rise in Childhood Poverty in Minnesota from 2000-2010

Advisor: Zachary Machunda

Child poverty in Minnesota has increased since 2000. The purpose of this research is to explore possible causes for the rise in child poverty in the State of Minnesota during the first decade of the twenty-first century. In order to achieve the stated aim, this research will use sources from peer-reviewed journals and government publications to answer the following questions: How did the Great Recession contribute to the rise in childhood poverty in Minnesota from 2000-2010? How did the increase in job losses contribute to the rise in childhood poverty in Minnesota from 2000-2010? Did cutbacks in social programs contribute to the rise in child poverty in Minnesota?

Cody Brandt

Empirical Analysis of the Effect of NCAA Sanctions on the Employment and Wages of a City

Advisor: Tonya Hansen

The expected benefits to a city of having a college football team result from the tourism activity generated by the team's fan base. Economic theory suggests that extra spending by tourists increases the demand for labor, causing both the number of employed people and their wages to increase. This research evaluates the effect that NCAA sanctions have on a city's employment and wages. Using data from 2001-2011, this research uses a time series model to measure the effect of sanctions on two cities (Starkville and Oxford, Miss.) with similar demographic characteristics, but whose college football teams possess alternative NCAA statuses. The Mississippi State football team in Starkville faces a sanction in the time period, while the University of Mississippi in Oxford does not. Research findings reveal whether and to what extent the NCAA is punishing both the football team and its host city when sanctions are issued.

Derek Lausch

The Economics of Sleep: The Connection between Sleep Deprivation and Social Costs

Advisor: Tonya Hansen

Recent studies show that people, on average, are sleeping less and working more hours in a day. This routine can alter decision making, resulting in people making shortcuts related to diet,

inaccurately estimating time needed to complete tasks and delaying completion of complicated workplace responsibilities. Collectively, individual behavioral changes introduce a variety of costs to society in the form of higher obesity rates and increased accidents in or while commuting to the workplace. Public data are used in a state-level regression analysis to examine the relationship between sleep deficiency and societal costs, such as obesity rates, workplace accidents and car accidents. This research may provide insights into why past attempts to reduce societal costs have been ineffective.

Diamond Stokes

Financial Literacy: Can Minnesota State University Moorhead Prepare Its Students for the Real Financial World?

Advisor: Tonya Hansen

Many individuals make their first independent financial decisions (securing loans, obtaining housing contracts, insuring health and property, etc.) as university students. However, research finds that university students in the U.S. possess inadequate financial knowledge. Like many universities, Minnesota State University Moorhead (MSUM) requires that students, regardless of academic major, complete a liberal arts curriculum prior to graduation. A basic finance course is not included in MSUM's existing liberal arts curriculum. Using a questionnaire based on the literature, this research measures the financial literacy of MSUM students. In addition to describing students' preparedness for making financial decisions, results may also inform curriculum decisions at MSUM.

Hoon Lee

Would Establishing a Cooperative System for Childcare Prevent Declining Labor Market Premiums Among Married Women in South Korea?

Advisor: Tonya Hansen

This paper analyzes how establishing a cooperative system for childcare in South Korea can prevent reduced premiums in labor markets among married women ages 30 to 39. Past research offers several explanations (marriage, childbirth, childcare, etc.) why women exit the labor market temporarily and how firms or the public sector, through financial incentives, influence this decision. However, past research does not consider the voluntary participation

of women in public service in relation to this issue. Using data from the Korean Statistical Information Service (KOSIS), this research identifies options for maintaining high levels of participation in the labor force by Korean women.

Jed Eix

The Limitations of Neoclassical Economics and the Need for a New Economic Thinking

Advisor: Vernon Dobis

Economics is far more intricate than a sanitized definition of human “choice” or the interaction of “economic agents” (production, consumption and redistribution). The more one delves into societies wirings the more apparent the broader purpose of economics has been missed. Economics explores ways to put a perceived need for change into practice – change for the better in society, and more specifically, happiness, life satisfaction, and well-being. Neoclassical economics has limited its focus to ignore these factors, and has tried to ignore values and subjectivity in an effort to be (pseudo) scientific. Bringing modern philosophy and the findings of social scientists into the economic framework could greatly strengthen and expand economics foundations and practicality. Applying philosophical ideology within economics could have the potential to help societies’ cohesiveness and consequently expand the bounds of utility. Societies could be “better off” utilizing economics with the intent of maximizing our existence, and thusly utility, defined by a more human, multifaceted spectrum of variables compared with neoclassical utility terminology.

Jesse Schuett

Economic Analysis of Publicly-funded Stadiums: 1990 to 2008

Advisor: Tonya Hansen

Several authors investigate whether and to what extent a publicly-financed stadium for a professional sports team contributes to economic growth at the city or state level. Some argue that professional sports franchises create new jobs and increase spending in cities in close proximity to the stadium. More recent research reveals this might not be the case. Using data from before and after new stadiums were built, economists find little evidence of positive economic growth and some instances of negative economic growth in areas surrounding stadiums. The research in this paper considers the locational aspects of new NFL and MLB stadiums

to determine which location characteristics are associated with positive economic impacts. The research in this paper incorporates taxable sales data from the county where a stadium is located in a linear regression to determine the economic effects associated with a new stadium. Results are of interest to policy makers charged with evaluating publicly-funded stadium proposals and taxpayers whose contributions are allocated to stadiums or other uses.

Ka-wai Lau

Economic Development in Mid-Sized Cities: A Case Study of Urban Transportation in Fargo-Moorhead

Advisor: Tonya Hansen

Urban transportation, as defined by O’Sullivan (2006), includes both auto and mass-transit systems used by residents within an urban area. Despite comprehensive transportation research conducted in large cities, limited research focuses on adapting mid-sized metropolitan areas such as Fargo-Moorhead to include both public and private transportation options commensurate with economic and population growth trends. Past expansions of transportation infrastructure in Fargo-Moorhead focused primarily on car users, not transit users. This research employs cost-benefit analysis to identify the long-term economic, social and environmental factors associated with a comprehensive urban transportation system in Fargo-Moorhead. Using publicly available data from the Fargo-Moorhead Metropolitan Council of Governments, the U.S. Census and the city of Fargo, this research assesses the cost effectiveness of public transportation in the Fargo-Moorhead metropolitan area, with emphasis on demographic factors that influence demand.

Mark Arinaitwe

Herding in Financial Markets: Insights from the Literature

Advisor: Tonya Hansen

Herding refers to an occasion when an individual follows what the majority of the population is doing, irrespective of his/her individual knowledge or instincts. This behavior can be detrimental to companies when widespread selling by a herd of investors leads a security’s price to decline. Herding is of interest to various social science disciplines and researchers including social psychology (Ginneken), economics (Veblen) and sociology (Simmei).

This paper reviews past literature to determine why herding behavior occurs, the impact herding has on financial markets, and to increase awareness of herding among investors.

Rachel Hettich

Is Language a Barrier to Foreign Direct Investment?

Advisor: Tonya Hansen

Foreign direct investment (FDI) is often explained by interest rates, exchange rates or distance, but language barriers may be an overlooked, yet influential, explanatory variable. Inward foreign investment is a critical part of economic growth for every country. The Language Barrier Index (LBI), constructed by Johannes Lohmann, was previously used to show that language barriers reduce trade between nations. Language barriers introduce transaction costs that could be eliminated through increased understanding of the “barrier language.” This research includes the LBI, along with distance, GDP and other geographical and historical variables, in the gravity model to estimate a regression of the impact of language barriers on FDI. If language barriers are found to impact FDI, countries could allocate more resources to language proficiency in order to attract investment and spur economic growth.

Ryan Daly

Is Sustainable Growth Possible in the Energy-Rich Russian Federation?

Advisor: Tonya Hansen

Energy is on nearly every consumer’s mind. Energy is consumed in various forms, especially those sources that are easily accessible. Previous research (Zhang) indicates a correlation between energy consumption and economic growth within the Russian Federation. However, Zhang’s research does not consider the relationship between a country’s energy production and its subsequent economic growth, as recognized in the economic literature. This paper addresses the knowledge gap by quantifying energy production within the Russian Federation, and examining its contribution to the country’s gross domestic product. Public data from 2000 to 2011 are used in regression and empirical analyses to describe the growth potential of the Russian Federation as it transitions into a market-based, global economy.



PRESENTATION LISTINGS

Ryan Oas

Shirking: How to Increase Your Employees' Productivity

Advisor: Tonya Hansen

Several employee compensation methods and productivity determinants influence the U.S. labor market. These methods of compensation include salary pay, overtime-based pay, hourly and commission-based pay. The possible determinants of worker productivity include incentives, peer pressure, morality and motivation. However, not all methods induce the same level of worker productivity. This research considers how methods of compensation and potential determinants of shirking vary in response to an efficiency wage.

Tyler Kreidlkamp

Does the Business Cycle Affect Crime Rates Through Public Spending?

Advisor: Tonya Hansen

The economic theory of crime provides a rationale for increased criminal activity observed during economic downturns. Donohue and Siegelman, using 1971-1989 data, find that crime is greatly reduced by an increase in social spending (Head Start, Job Corps, and Quantum Opportunities programs). However, in a period of economic contraction when criminal activity is expected to increase, less revenue is available for funding education and other public programs. By incorporating 2000 to 2010 data in a linear regression model, this research evaluates the relationship between U.S. social spending during the Great Recession and states' crime rates.

Victoria Duncan

Decision-Making and the Demand for Abortion: Insights from the Economics Literature

Advisor: Tonya Hansen

Access to legal abortion varies throughout the U.S. and the world. In areas of the world with restricted access to legal abortion, demand for abortion persists. The economic theory of fertility control states that the determinants of abortion demand are opportunity cost factors and revealed tastes for children and the direct and indirect costs of an abortion. The economic theory of fertility fails to incorporate cost-benefit analysis, inconsistent time preferences and behavioral economic theories, which are often associated with other decisions studied in the economics literature. This research relies upon

a broader literature, in terms of both economic decision-making theories and geographical boundaries, to conceptualize international demand for abortion.

Wen Kai Ling

Solar Energy Markets in Malaysia: An Economic Perspective

Advisor: Tonya Hansen

The Malaysian government is supportive of renewable energy, as evidenced by the implementation of the Malaysian Building Integrated Photovoltaic (MBIPV) Technology Application Project in July 2005. The MBIPV project aims to lower the long-term costs of integrating photovoltaic technology within building designs. The geography and climate of Malaysia reveal potential for additional solar power expansion. This literature review examines the resource allocation of solar energy for heating and electricity generation in Malaysia. This paper contrasts Malaysia's solar energy market to other renewable energy markets and compares Malaysia's experience relative to other countries. Results of this research will inform the decisions of households, firms and international governments involved in solar energy markets.

EDUCATION

Bjorn Halvorson

5E Lesson Plan on Photosynthesis

Advisor: Richard Lahti

The presentation will be an inquiry based lesson plan based on photosynthesis. It will be a 5E lesson plan on photosynthesis. A 5E lesson plan is a way of teaching lessons based on inquiry and exploration. There are five steps to a 5E lesson plan; engage, explore, explain, elaborate and evaluate. After the presentation, the students should be able to explain and understand photosynthesis.

Carole Braschayko

Big Foot: The Overwhelming Footprint of Pearson Publishing

Advisor: Steven Grineski

Corporate school reform certainly affects what goes on in P-12 schools, as well as teacher education. Corporations like Pearson Publishing, and foundations like the Bill and Melinda Gates Foundation, are not only transforming the work

of teachers and teacher educators, but sadly also transforming the very purpose of their work. As a result, with my mentor Steve Grineski, I decided to examine this powerful influence that permeates all aspects of our work at Minnesota State University Moorhead. We began reading various materials analyzing corporate school reform and Pearson Publishing, in addition to Pearson Publishing's own web-based materials. Next, we generated categories of interest; for example, I picked Pearson Publishing's Teaching Performance Analysis (TPA) effect on student teachers; and Steve was interested in better understanding effects of corporate school reform. Throughout the semester, we met and talked about what we had learned and what questions emerged. We developed a paper that we submitted for publication to share our thoughts. I hope that with this research, we can heighten awareness about corporate school reform to bring about positive change.

Jacob Knodel

The Influence of PBS Implementation on the Appearance of Problem Behaviors and Positive Behaviors and Student Appraisals of an ELL Classroom

Advisor: Tack, David

The purpose of this study was to examine the influence of implementation of the Positive Behavior Support (PBS) system of classroom management on the appearance of students' problematic classroom behaviors and positive classroom behaviors and student appraisals of the classroom behavioral climate. Ten ELL students, including sixth, seventh and eighth graders, in a remedial language arts classroom were observed before, during and after implementation of PBS in terms of the amount and types of negative and positive classroom behaviors exhibited. Two students were also interviewed before and after implementation of PBS in order to ascertain student opinions of the classroom's behavioral climate. All of the students received instruction regarding common negative classroom behaviors and appropriate replacement behaviors, and how utilization of positive replacement behaviors would be rewarded over a nine-week period. This was accomplished through instruction, demonstration and practice.

Jacqueline Hanson

Ecosystems: A High School Science Lesson, Taught Using a 5E Approach.

Advisor: Richard Lahti

5E lesson planning has moved its way into the curriculum of the teaching programs here at MSUM. The focus of a 5E style of teaching is to allow students to learn by inquiry and expansion of discovered knowledge, with little direct instruction from the teacher.

This presentation will be an example of a 5E lesson plan for food chain for a high school ecosystem unit. The lesson will include an online simulation, other hands-on activities and a short discussion about the 5E method of instruction.

Jennifer Kusler

A Gendered Experience: The 1970 Minneapolis Teachers' Strike

Advisor: Sheila Marquardt

Today, many people credit the 1970 Minneapolis Teachers' Strike as the catalyst for the Public Employees Labor Relations Act (PELRA), which guaranteed the collective bargaining rights of public employees. At one time, public employees did not have the right to strike. My research focused on the events leading up to this influential strike in history, as well as the context in which the strike occurred. The climate of education, including the purpose and practices in the field, were dramatically different 50 years ago compared to today. I interviewed Colleen Schepman, the only woman involved in the negotiating team during the strike. Colleen's unique story revealed the struggles of women and elementary school teachers during the 1960s and 1970s.

Kaitlin Snaza

5E Lesson Presentation on Cell Structure

Advisor: Richard Lahti

5E is a type of lesson planning that is being focused on in MSUM science teaching methods classes. It is based on student exploration and inquiry, instead of lecture type instruction and "cookbook" type labs. It encourages students to learn through experience and exploration and to discover things on their own with the guidance of a teacher. I will be presenting a 5E lesson on cell structure and function. I will be incorporating a computer simulation and hands-on activities into my lesson.

ENGLISH

Allegra Barlow

"Homeschoolers"

Advisor: Elizabeth Severn

"Homeschoolers" is a selection from my thesis, *The Blue Hutch*, which is a collection of non-fiction essays that explores the juxtaposition between a child's innocent understanding of the world and the painful and fulfilling experiences of life as an adult. "Homeschoolers" is an essay that examines the transition between being a homeschooled student for my whole life and then being faced with the new venture of attending a private school during high school, along with the struggles I had adapting to this new method of learning. This essay combines both narrative voice and critical voice as I explore both the painful and humorous trials of adolescence and the transitions of social hierarchies in both ideologies of education.

Jamee Larson

Hey, Mrs.

Advisor: Elizabeth Severn

Hey, Mrs. is my thesis project, a memoir about my relationship with two Bosnian boys who began as strangers on a sidewalk but evolved into family. I was a single career woman struggling with a hidden addiction to alcohol and estrangement from my parents and siblings when two boys stopped me to ask, "Hey, Mrs., do you have a dollar?" They were young refugees trying to navigate a new world and learn a second language, craving love and guidance. Hey, Mrs. is an account of the six years of simple yet powerful experiences we shared that many people would take for granted. It also explores the important role they had in helping me rebuild the damaged relationship with my own family, especially as I came to understand the difficult dynamics that go into being a parent. The memoir combines narrative voice and critical voice as I tell our story and reflect on the significance of our relationship.

Jennifer Phillips

Taking People at Face Value? How Culture, Physiology and Upbringing Affect Our Ability to Communicate Nonverbally.

Advisor: Alan Davis

Nonverbal communication is powerful, but often mysterious, and we often react powerfully

to people based on slight cues – hatred, love, confusion, mistrust. Jung suggested these people provoke our Shadow – our denied Self. I discuss how we learn body language by mirroring others; we literally do what they do, inside our head; this is how we learn to read emotion. I will summarize some cultural differences in kinesics (body language), and talk about physical and cultural differences in facial behavior, along with reading body language. Anatomical diagrams of facial muscles will be shown. The audience may be invited to participate in my demonstration.

Katelin Hansen

Characterizing Glinda as a Good Witch

Advisor: Laura Fasick

The classic children's story, "The Wizard of Oz," by L. Frank Baum has been retold many times, in many different mediums. This tale captured the attention of Gregory Maguire, author of "The Wicked Years," (a series of novels based on the life and times of the Wicked Witch of the West) and Winnie Holzman, who prepared this version for Broadway production. Finally, the voice of the villain is heard who gives a different perspective of Baum's classic story. In this beloved tale, the major characters from the original "The Wizard of Oz" remain key to the telling of Maguire's and Holzman's adaptations. However, when the story is told from the perspective of the Wicked Witch, the characterization of these main characters change. One of the most influential characters in the 1939 adaptation is Glinda, the Good Witch from the North, but is she really so good? In the original version, she does not appear when Dorothy lands in Oz, but much later in the novel, but she is the beautiful witch that audiences see in the film. In Maguire's novel and on Broadway, Glinda maintains her beauty, but her brilliance and motivation are very different. The characterization of Glinda is brought into question in these adaptations. Katie Hansen compares and contrasts the characterization of Glinda, the Good Witch from four adaptations: L. Frank Baum's, "The Wizard of Oz," the 1939 film, Gregory Maguire's "Wicked," and the Broadway production of "Wicked." She finds production and entertainment reasons for the character changes.



PRESENTATION LISTINGS

Lauren Stanislawski

Do Looks Really Matter?

Advisor: Elizabeth Kirchoff

Every day, men and women begin conversation by exchanging a simple greeting. Within the area of pragmatics, particular linguistic topics such as Grice's Maxims interest me. Grice's Maxim of Quantity implies that a person responding to a greeting give no more or no less information than necessary. Despite this, many people responding to a greeting continue to flout the Maxim of Quantity. This study analyzes how both males and females tend to flout Grice's Maxim of Quantity more frequently when responding to the greeting, "Hey, how's it going?" by a female that is dressed professionally compared to when she is dressed casually.

In order to gather information, I devised an experiment in which I greeted random males and females on the MSUM campus and took note of their responses. I greeted 25 women while I was wearing professional dress and then 25 women while I was wearing casual dress. I also greeted 25 men while I was wearing professional dress and 25 men while I was wearing casual dress. Ultimately, my findings were that both men and women violated Grice's Maxim of Quantity significantly more when I was dressed professionally than casually. I learned that appearance plays a major role when greeting. As I was dressed professionally, both men and women desired to engage in longer conversation with me.

This study caused me to reflect more about what I choose to walk out the door in. Men tended to flout the maxim of quantity by discussing a personal problem with me while I was dressed professionally, and most women complimented me while I was dressed professionally. Overall, my study implied that both men and women judge first with their eyes; therefore, appearance is a factor that matters and people are always paying attention, whether or not they are consciously aware.

Maureen Kraft

The Great Deceiver in Milton and Tolkien

Advisor: Stephen Hamrick

John Milton's "Paradise Lost" and J.R.R. Tolkien's "The Silmarillion" each engage the fortunate fall and present an evil character that, through his own free will, becomes the great deceiver. These two great works of literature describe these evil characters in a similar fashion: they each choose their own will instead

of the will of God, and through examining the Petrarchan Conceit and Apotheosis in Milton and Tolkien's works, these characters' limited agency is shown through their movement.

This presentation analyzes the similarities between Satan and Melkor, and how both Milton and Tolkien use movement to illustrate the characters' limited agency.

Whitney Walters

Building Character

Advisor: Elizabeth Severn

"Building Character" is written as part of my thesis that centers around my mom's death and the changes that event had on my family. My memoir is written from my perspective, although I include insights from family members to broaden the scope of the text. "Building Character" examines how my relationship with my youngest sister was shaped by the loss of our mom. Looking through the lens of grief, this essay portrays how Makayla and I navigate life. At the time of my mom's passing I was 8 years old, and so her absence became an essential part of my being. I chose to write about this subject matter because her death was sudden and unexpected. My thesis is written in an attempt to better understand the loss of my mom, and also for myself, so that I may move forward with my life from the emotions that have tethered me to the past.

FILM STUDIES

Adam Gawarecki

Religion and Film Noir

Advisor: Anthony Adah

Betrayal. Death. Murder. Paranoia. Welcome to the dark and gritty world of film noir. Despite the pessimism that pervades films noir, a religious worldview sometimes exists and upholds a stable moral order. Religion is an understudied theme in Film Noir, yet the fatalism, despair and pessimism prevalent in the genre warrant the need to ask the question, where is God in all this? In this research project, I ask, "How is religion portrayed in these dark films? What religion is portrayed? Does the absence of religion comment on the time period during which the genre thrived?" Working from selected films noir made in the 1950s, I attempt to answer

these questions and to speculate on how religion functions in a genre that, on the surface, appears to be most "un-religious."

Bhupendra Bhattarai

Romeo and Juliet

Advisor: Anthony Adah

The short movie "Romeo and Juliet" will possibly leave an impact on people that we are losing our connections and relation with our near and dear ones by the ironic demonstration of robot and human beings.

Conor Holt

Film d'Science: Science-Fiction Meets Art Cinema in a Senior Film Project

Advisor: Thomas Brandau

In the senior seminar class in the Cinema Arts/Digital Technologies Department, senior film students must complete a final short film, a culmination of skills learned in four years of film education. While most students film in February and March, I filmed my project in October 2012, a stipulation of the Minnesota Film and TV Board Grant, which I received last year. In return for a \$1,500 grant, I had to have my film completed and ready to screen at the Fargo Film Festival, March 5-9. My film is called "A Better Life," a science-fiction drama about a woman who uses a remote control to care for her comatose husband. With this film, I sought to balance the genre conventions of science fiction with the narrative and temporal style of art cinema. The film features futuristic technology, while moving back and forth between the past and present. Through the exploration of technology's impact on relationships and how we perceive the past through memory, I was able to depict an unhappy marriage that a miraculous technology both saves and destroys. I will be screening my film project and will be speaking about my experiences.

Jordan Stark, Conor Holt, Chance Cole

FILM 472: Community Video Projects from fall 2012

Advisor: Raymond Rea

Film 472, an advanced production class in the Department of Cinema Arts & Digital Technologies, covers the different types and ethical questions of documentary cinema. For their final project, students are split into groups and assigned a non-profit community organization as a client. Students work with these clients over the course of a semester to produce a promotional

video. This project helps students learn about working for a client and enables them to put their documentary education into practice. The four community clients of the fall 2012 semester of Film 472 were: Fargo-Moorhead Youth Symphony, Red Raven Espresso Parlor, Actions Etc., and Midwest Mud. Student representatives from the first three groups will present their finished products and speak about their experiences working with their clients.

Joseph Koesterman
Reflections: Revealing Self in Personal Documentary
Advisor: Anthony Adah

There is, perhaps, no better illustration of what Andre Bazin referred to as the “mummy complex” than personal documentary. Often labeled as a “genre within a genre,” personal documentary is simultaneously the most narcissistic and most preservative medium for a filmmaker to engage in. However, by placing themselves inside the subject they represent, the filmmaker is also given the unique opportunity to show their subject through their own eyes and give the subject a literal human face. By screening my short film *Reflections*, I intend to illustrate the power of personal documentary to bring an audience to a subject in a personal way. I also plan to discuss that, while personal documentary may seem to be purely focused on the filmmaker, it ultimately aims to bring the audience to a new level of understanding. After all, what good is preservation if it's only for oneself?

Kaeun Ko
Film Noir Lighting on Women
Advisor: Anthony Adah

Film noir is frequently described as a visual style or genre that depicted a fatalistic, paranoid, duplicitous and dark world of several films from major American studios of the 1940s to 1950s. Lighting of film noir is an interesting style that characterizes the film noir, and little is known about the meaning of the lighting. In this presentation, I will attempt to show how the use of light and shadow convey meaning in these films generally, and help the audience to the subtext of light and shadows in relation to the female characters. I specifically examine three different women from three films placed in similar settings to make my argument.

Rebecca Moncrief
Female Body Language in Film Noir
Advisor: Anthony Adah

Perhaps more than any other style of film, film noir incorporates female body language as an essential component of the overall message of the film. The masters of the noir genre utilize the art of body language in several ways; as an essential tool for the development of central female characters, to emphasize underlying thematic elements of the film, and to lend distinct visual style to the aesthetics of a noir film. In analyzing female body language in film noir, I demonstrate how such an examination might clarify and complicate aspects of both feminist and auteur theories that have not yet been widely discussed. More importantly, investigating the unique emphasis on female body language in film noir could also be used as a tool to further define it distinctly as a film style.

Simone LeClaire
Faulted Men and Dangerous Women: Hidden Art in Characters of Classic Films Noir
Advisor: Anthony Adah

The film noir movement that began in the 1940s carries one of the most recognizable styles in American cinema, and perhaps even on a worldwide scale. The uninitiated film student can identify the lighting, shady characters, and somber themes that characterize film noir, even before they grasp any conceptual language to speak critically of these elements. What is perhaps less widely recognized is the crossover between film noir – as an accepted style of American cinema – and the art film, which remains suspiciously regarded by certain circles of film students, mainstream movie-goers, and even film critics. Specifically, the consistently ambiguous nature of film noir's protagonists is one of the defining characteristics of the art film. The refusal to grant spectators identification with the point of view of one character detaches them from the viewing and turns the spectators into a more actively thinking audience. Furthermore, the art film has long been used by feminist filmmakers as an alternative avenue to create progressive representations of women. Comparatively, film noir (though still solidly within CHC patriarchal filmmaking) introduced new and controversial images of the sexy and dangerous femme fatale. My project explores how the film noir style (which itself borrows heavily from German Expressionism) creates and

sustains these untraditional character types from the art cinema, while remaining still acceptable within the American classical style.

Simone LeClaire
The Sassy Voice of the Goddess: Non-Diegetic Female Narration in “Girl Who Lives in a Tree”
Advisor: Anthony Adah

Female voiceover narrators have been conspicuously absent from classic Hollywood cinema. When they do appear, they are often accused of being subverted to the internal male narration of classic Hollywood cinema (Hollinger). I propose that part of this subversion is illustrated by the consistently diegetic nature of female voiceover narrators when they do appear. For example, Kathleen McHugh outlines the developing role of female narrators in film with her analysis of contemporary filmmaker Jane Campion, but this analysis is still limited by all of the narrator's diegetic presence in the story. Therefore, this paper will investigate the place of the non-diegetic female voiceover narrator in my senior capstone film, “Girl Who Lives in a Tree.” Based on the expectations created by conventions of classical Hollywood cinema, I argue that my narrator can and will be used alongside other art cinema techniques to break the unity of the space-time continuum in “Girl Who Lives in a Tree.”

GEOSCIENCE

Stephen Kunz, Adam Marks, Jonathan Sands, John McMullen
Sequence of Stratigraphy of the Tyler Formation
Advisor: Karl Leonard

This research is being done because carboniferous rocks in North America are commonly cyclical (repeating lithofacies) because of changing climate conditions resulting in sea level changes during an “ice-house world.” The Tyler Formation (Upper Carboniferous: Atokan) occurs in the Williston Basin of western North Dakota. It contains meter-scale cycles of repeating lithofacies. A sequence stratigraphic analysis improves temporal and spatial resolution, as well as provides environmental and climatic information of the cycles. The Tyler Formation has shown cyclical rock patterns repeating throughout the formation. These cycles



begin with calcareous mudstones overlying a brecciated carbonate, then carbonaceous shales and inter-bedded mudstones and limestone, then capped with a brecciated carbonate interval. Lower cycles contain fossils (inarticulate brachiopods and bivalves) that indicate shallower marine conditions, whereas middle and upper-part fossils (crinoids, brachiopods and bryozoans) indicate open-marine conditions. The lower cycles indicate a transgressing sea, whereas the middle and upper cycles represent maximum flooding surfaces. It's expected that the middle and upper Tyler cycles will show greater lateral basin extent than the lower cycles. This analysis will help with future studies of fossil distribution in the Tyler Formation and may show changing climactic conditions of the carboniferous rocks and improve the economic development of the formation.

HISTORY

Chad Hanson

Disappearance of the Bison in the Northern Plains

Advisor: Nathan Clarke

Over the years, numerous articles and books have been written about the near-extinction of the bison in the 19th century. Most of this research has examined the factors that played a role in the destruction of the bison population. Some of these factors include the environment of the Great Plains, Euro Americans, the Industrial Revolution, nomadic societies, etc. My own research led me to ask: How do the factors contributing to the diminishing bison population in the 19th century relate to each other? Are they separate entities or do they link together and influence each other in some way? This essay will chronologically examine how the factors leading up to the near-extinction of the bison directly and indirectly influenced each other.

Christine Manikowski

How the 1755 Earthquake Affected the Political Ecology of Europe

Advisor: Nathan Clarke

How the 1755 earthquake affected the political ecology of Europe. Lisbon was a major trading area, and after the earthquake hit, the economy was greatly affected.

David Houghton

The Irish Famine: Pointing Fingers

Advisor: Nathan Clarke

The Irish potato famine took hundreds of thousands of lives and impacted even more, leaving a permanent scar on the past. The potato blight is the most common explanations for the famine. This explanation is too one-dimensional. In this presentation, I will argue that the famine was brought on by other reasons like weather, relief aid, the economy and immigration. I would argue that it was greatly influenced by the weather, aid, economy and immigration – more than people would know to be a leading cause of the famine. Conclusions of this famine could cause other famines from happening in the future.

Edward Hentges

Conservation Practices in Africa

Advisor: Nathan Clarke

In this paper, I examine the creation of game reserve/parks in Eastern Africa. This paper argues that the European colonial powers' conquest and occupation directly altered native African relationships with the land and created problems that continue to inhibit victimless game reserves and conservation projects in Eastern Africa. Europeans' ethnocentrism introduced the continuation of a western conceptualization of land use, ordering of space and occupation. Europe's division of African colonial land control was integral to population control, and worldwide conservation organizations' attempts to preserve wilderness areas have conversely supported human destruction of disappearing natural habitats. Colonial governments promoted displacement of farmers to subpar lands, forcing people to cultivate larger areas, and ignoring effective and more sustainable methods in order to exert control. The British were mistaken in their notion that modernization is synonymous with advancement.

Fan Yin

China's Three Gorges Dam

Advisor: Nathan Clarke

What is the relationship between sustainability and profit? Is there a trade-off between the two? In my presentation, I will examine this relationship through a so-called clean and renewable energy dam, the Three Gorges Dam, a controversial dam. This hydroelectric dam spans the Yangtze River, located in Hubei province,

China. The government estimated that this 17-year construction project cost 23 billion dollars. However, the urgent environmental issues make this world's largest power station one of the most controversial projects in the world. My research focuses on what the environmental impacts are and why it is still happening. Studying the relationship between the environment and profit can help us have a better understanding of what we can do in the future.

Felicita Salazar

Spanish Conquistadors Bring Disease to the New World

Advisor: Nathan Clarke

History has given Hernan Cortes and Francisco Pizarro recognition as the greatest Spanish conquistadors. In this presentation, I question if this is correct. I argue that while the Spanish had advanced military tactics, it was disease that ultimately helped them win. The Aztec and Inca Empires fell to the Spanish invaders only after their population declined from diseases the natives had never encountered before. With the decline in population, Cortes and Pizarro had the ultimate weapon, much more deadly than steel blades and cannons. Decline in population made it easy for the conquistadors to establish their colonies. The natives never had a chance to defend themselves; they were born to die the moment the Spanish set foot on virgin soil.

Jacob Clauson

The Environmental Effects of the Fur Trade

Advisor: Nathan Clarke

My paper looks at the impact the trade for beaver pelts had on both the environment and the political ecology of North America, specifically the area surrounding the Great Lakes. This essay argues that the fur trade, and the westward expansion of America it helped spark, had many impacts on both the environment and the political ecology of the land. To prove this argument, I will review the land usage and colonization of North America by European powers, the effects on the native peoples and the political ecology of the fur trade, and the transition to industrialization and the environmental impacts. I will be giving examples of different colonial powers – the British, French and the colonists, Native American groups, the Huron, Iroquois, the Ottawa, etc. I will highlight the relationships between the many different groups and their

relationship with the environment and natural resources, namely the beaver.

Jenna Weinberger

An Analysis of the Mexico City and Nicaragua Earthquake

Advisor: Nathan Clarke

I will make a comparison between the 1985 Mexico City earthquake and the 1972 Nicaragua earthquake. It will focus on the political impact the earthquakes had and how it changed the way people viewed the government.

Joshua Bisek

Ban Zhao: Venerable Woman and Brilliant Scholar of the Han Dynasty

Advisor: Henry Chan

Ban Zhao (45-116 AD), often regarded as China's most famous female scholar, was the first known female historian of China and the Han Dynasty. As a member of the elite gentry class family of Ban, Ban Zhao, along with her brother's Ban Gu and Ban Chao, enjoyed and were allowed opportunities, such as a high degree of education in Confucianism, literature and astrology, that were not common to lower classes or women of the time. Although conservative in approach, Ban Zhao advocated and encouraged the integration and education of women in traditional Confucian society and was an influential figure in court politics. The culmination of Ban Zhao's achievements and her family's status and background created a skilled woman and a brilliant scholar that was ahead of her time.

Kelsey Thibodeau

The Japanese Military's Organized Sexual Slavery: The Issue of the Korean Comfort Women

Advisor: Henry Chan

The sexual exploitation of women during wartime was not new when the Japanese used the "comfort system" during World War II. Supported by the Japanese War Administrations, the comfort system was one of the largest known organized sexual-servitude operations in modern times. The system was especially harsh on Asian women in Japanese-occupied areas. This study focuses on women who became known as Korean Comfort Women, one of many victims of Japanese colonial rule. Japanese soldiers preferred Korean women to other Asian women because they understood Japanese language.

Women and soldiers alike had to deal with venereal diseases; however, as researched, the comfort women, who were abused physically and psychologically, suffered the most. Court cases, starting in the 1990s, assert that the comfort system should be categorized as a war crime. Additional research needs to be done as more information is released to the public and more women step forward with their stories.

Maureen Hukill

Emperor Xiaowen (471-479) and the Sinification of the Northern Wei

Advisor: Chan, Henry

The Sinification of the Xianbei barbarians during the Northern and Southern periods was a key development in Chinese culture. Although the process of Sinification was technically the absorption of Chinese culture, the Northern Wei experiment is perhaps one of the best examples of how barbarian ethnic groups enriched and altered the culture they were adopting. This paper attempts to pinpoint the changes the Xianbei underwent during the Northern Wei, as well as explain the significance of those changes to Chinese culture. In matters of religion and land reform, the Xianbei applied traditional Chinese philosophies to form a distinctly new tradition. In elements of court life, concerning dress and manners, Emperor Xiaowen enforced new policies to ensure Sinification. Through this process, many elements of Xianbei culture mixed with Chinese culture. Many Xiaowen Sinification measures were largely successful, but ultimately these policies would set into place the fall of his own state, as it became more Chinese than Xianbei. Still, despite the implications for the Northern Wei, this experiment in Sinification brought new traditions and rejuvenation to Chinese culture during the Northern and Southern periods.

Mercedes Eke

How Have Natural and Human Causes Contributed to Floods in China

Advisor: Nathan Clarke

Throughout a span of time, China has been affected by numerous floods. These floods could be explained by having both human and environmental causes. My work was formed by readings from several books and online research. This study goes over how the people of China were affected by these floods in many ways; such as damage to crops and farmland,

factories having to suspend operations, rising food prices from damages, houses collapsing, along with many other affects. I also reflect on how there are natural causes of these floods such as high rainfall, relief and coastal flooding. I also argue how there are human causes that could also be playing a role in what is causing the floods in China. These are arguments such as deforestation, poor farming, overgrazing, over cultivation, poor waste management and population pressure.

Michael Crist

Return of the Lost Children: The Experiences of Vietnamese Amerasians in the United States, 1965-2013

Advisor: Chan, Henry

Children of the dust; half-breeds, lost children – they went by many names, and their story is one of struggle and adversity, but also one of strength and hope. Who were these children of the dust? During the Vietnam War, tens of thousands of Amerasians, children of American fathers and Vietnamese mothers, were born. These children grew up facing poverty and discrimination after the government of South Vietnam crumbled under the might of the Viet Cong and North Vietnamese forces. During the next decade, their plight was characterized by denial from the Vietnamese and American governments, relocation, deepening discrimination and ill-conceived attempts to bring them to the United States. Return of the Lost Children explores the immigration of these dust children to the United States and analyzes their struggle to find their cultural identity in the face of conflicting societal expectations and intense bureaucratic obstacles. Through their shared experience, Amerasians have formed an incredible cultural bond in America, and feel more a part of Vietnamese society than of American society. Whether they have returned to Vietnam to raise families or remained in the U.S., they have retained the values of their Vietnamese homeland, placing family values and achievement over enjoyment and material desire. The story of Return of the Lost Children is a powerful one, and can inspire each of us to overcome our own barriers to success.



PRESENTATION LISTINGS

Nancy Stenger

Political Ecology of Monte Verde Costa Rica
Advisor: Nathan Clarke

My presentation will address how politics played a role in the development of Monte Verde National Reserve in Costa Rica.

Nikkole Martin

A Study of Oda Nobunaga's (1534-1582) Policies Towards the Belligerent Buddhist Sects
Advisor: Henry Chan

The purpose of this presentation is to examine Oda Nobunaga's policies towards the belligerent Buddhist monasteries, which challenged his authorities in Japan during the mid-sixteenth century. Particular attention is paid to Nobunaga's interactions with the True Pure Land Sect and the Ikko ikki and the confrontations at Mt. Hiei and the Honganji. Nobunaga is often portrayed as cruel and ruthless, even among Sengoku daimyo, and his suppression of the bellicose Buddhist monks and followers played a large role in this notoriety. Yet Nobunaga's actions were based on strategy and tactics, not religion.

Rachel Allgor

The Effects of Rubber Production and Cultivation Around the World
Advisor: Nathan Clarke

Henry Ford, a pioneer in American entrepreneurship, was one of many people who became interested in the potential of rubber production in the late 1800s. His plantation, Fordlandia, was one of the only plantations in the Amazon, while there were many more in the better ecosystem of Southeast Asia. The production of rubber has had many effects on the environment, at both ends of the world, and this essay argues that the most predominant effects are deforestation, water corruption, soil degeneration and decreased biodiversity.

Sri Krishna Kadimisetty

Effects of the Nuclear Arms Race and Uranium Mining on the Navajo Reservation
Advisor: Nathan Clarke

During the Cold War, towards the end of World War II, the United States Government participated in a Nuclear Arms Race with the USSR, and in the process, conducted heavy uranium mining in the Navajo Reservation. Necessary precautions

were not taken, thus hurting the local Navajo population. This talk will discuss the effects of uranium mining on the Navajo community and the role played by the government and the community in attempting to recover.

INTERNATIONAL STUDIES

Jed Eix

Current Impact and Consequences of Islamic Immigration in the Country of Tolerance – the Netherlands
Advisor: Andrew Conteh

The phenomenon of Islamic immigration is one of the most pressing policy issues in the Netherlands today. The Dutch have a unique situation due to their history, culture and economic and political policies. Liberal, multiculturalist immigration laws set in place after World War II were the dominant reasons for mass immigration. While multiculturalism first appeared as forward-thinking, unintended consequences occurred, with possibility of permanent effects. Cultural tension has been high, especially since 9/11, including political murders and the rise of politicians who are against Islamic immigration. Looking at the immigration policies of the post-World War II era and the nature of Dutch culture reveals the way the issues have developed and the processes the Dutch are using to resolve them. Despite liberal Dutch culture, the nation was unable to assimilate many Muslim immigrants who came from conservative, poor backgrounds. Increased tension was also caused by migrants' intolerance of Dutch society, leading to high crime levels, disassociation with the native Dutch and a burden upon the elaborate welfare system. Recently, laws have been put in place to curb Islamic immigration, and public opinion on multiculturalism is negative, considered dysfunctional and ultimately a failure. Although mass migration has stopped, permanent effects may be incurred at the expense of traditional Dutch society, as demographics will soon skew more toward the Muslim population already residing in the Netherlands. Thus, Dutch values and society are in a cultural crisis that will need resolution in the near future, lest it be altered permanently, for better or worse.

Kayla Abtin

For the Right to Water and Preservation of Life: Against the Privatization of Resources in Peru
Advisor: Andrew Conteh

This thesis explores whether the neoliberal theory of development is harmful or helpful to the water sources of Peru and the further expansion of water resources into poor communities. The use of neoliberal practices enhances the privatization of public resources, such as water or minerals, which in turn can lead to the restriction of resources for the general population and an increase in the rate that Peruvians will pay for their water services. Privatization of resources also may cause the pollution of water resources near private enterprises. It is through privatization that Peru has seen some improvement in its economy; however, this economic stimulus was most prevalent during the regime of Roberto Fujimori, which was the beginning of neoliberal government practices within the Peruvian government. Privatization does have some short-term benefits, such as improvement of infrastructure, and alleviation of the need for government to finance all public services, but it is not a long-term solution to reducing poverty or bringing resources into poorer communities. The use of certain loans and agreements will ultimately be more beneficial to the livelihood of Peruvians in their effort to find long-term success.

Richa Neupane

Feasibility Study to See if Nepali Students Association (NSA) Can Start a Scholarship Fund for Nepali Students at Minnesota State University Moorhead (MSUM)
Advisor: Konrad Czyszski

The growing Nepali student community at Minnesota State University Moorhead (MSUM), which started about 15 years ago, deserves an opportunity to have a scholarship fund for Nepali students at MSUM. Nepali Student Association (NSA) has been catering to the group's needs since 2006, and it is an eligible entity to organize and establish this fund. Like most of the non-citizens, Nepali students have limited scholarship opportunities in USA. Although MSUM has a handful of them, they are either highly competitive or students do not apply because of their personal shortcomings. If NSA can establish this fund, students will be able to apply for scholarships where their chance of getting them can be much higher. This study explains the scope of organizing a

scholarship for these Nepali students. It argues why Nepali non-citizens would value aid. It looks at why scholarship opportunities for non-citizens are limited in the USA and identifies what is still available. The report concludes by recommending an immediate formation of a preliminary task force committee so that it can contact and determine the donors willing to put money in a Nepali-based aid fund.

MARKETING

Emily Grindberg

Kenny's Candy Licorice Study

Advisor: Ruth Lumb

The purpose of this research was to examine how Kenny's Candy Co. licorice is perceived by the general population. Students in a consumer behavior class conducted a taste test based upon the Wiley Wallaby Gourmet Australian Licorice flavors of red, black, blueberry, watermelon and green apple. The taste test was used to measure responses to taste, texture, smell and chewiness of the products.

Data received from these tests was used to determine demographic preferences, as well as responses to the quality and perceptions of the Kenny's Candy gourmet licorice product. The information will be useful for the planning and implementation of marketing strategies by Kenny's Candy Company.

The presentation displays the steps involved in the research process, including types of information required by the Institutional Review Board for approval of research projects conducted at MSUM.

Japhet Massesa

Marketing Simulation

Advisor: Ruth Lumb

Through the use of a simulation, this presentation shows how marketing research is conducted in a firm. The simulation is based on a large international electronics firm entering the microcomputer business. It has formed a new PC Marketing Division to pursue this business opportunity. In order to succeed in a fast-paced market, where customers are demanding and the competition is attempting to take away business, marketing research must be undertaken. We will show how research enables marketers to analyze a situation, plan a strategy to improve it and

then execute that strategy into the future, while facing uncertainty from the outside environment. The interplay among marketing, manufacturing, logistics, human resources, finance, accounting and team management is stressed. The simulation provides a real-world example of trade-offs and potential outcomes of various decisions. Through this simulation, we learned how to make decisions in ways that would be most profitable for the firm. The requirements included market opportunity analysis, brand development, advertising, pricing, sales force management and profitability analysis.

Yi Chu

Windows Phone 8 is Reinvented Around You: An Interactive Experience

Advisor: Ruth Lumb

This project stimulates user engagement to emphasize the characteristic of Windows 8, which allows users to personalize their device(s) to fit their needs. To create an interactive experience for MSUM students, I created a model phone board with interchangeable tiles to engage them in arranging their own phone screen. An integration of multi-media engagement, including photo/video sharing and social media posts, creates a holistic user experience.

MASS COMMUNICATIONS

Jessica Jasperson, Nicole Jasperson

Exposing Violence in Children's Films

Advisor: Martin Grindeland

Children's films have been popular since the beginning of the film industry. Cartoons were played as previews in the movie theatres in order to entertain children while the adults prepared for the action. As the film industry progresses, children's films have become more visually entertaining and more realistic. Certain films have been criticized for the amount of violence they portray, but children's films have not been closely examined. This study is the examination of the top 10 grossing children's films according to the box office, rated G and PG, from 2010-2012 to determine the amount of violence portrayal of each character. Using a content analysis, this study identifies amounts of violence, characters' reactions to violence and the results of violence in the form of punishments or non-punishments. The findings do suggest violence as a norm in society, resulting in children's "normalization" of violence.

Yu Zhou

How Violent Portrayals are Kept Out of Entertainment Media in China

Advisor: Martin Grindeland

Many violent portrayals are kept out of the mass media in China. I will briefly describe how the Chinese government restricts access to violent media as part of the cultural experience of its citizens.

I will explain the reasons why their government restricts access to violent entertainment in the form of violent video games, violent scenes in movies and violent portrayals on television. I will explain what happens when the rules are violated.

Also in my presentation, I will strive to explain the mass media system in China and how censorship of gratuitous entertainment violence takes place, as well as the reaction to that censorship.

MATHEMATICS

Brady Keller

Pattern Avoidance in Ordered Set Partitions

Advisor: Adam Goyt

We study ordered set partitions of length n avoiding the pattern $13/2$. We will present a bijection between the set of ordered set partitions of length n that avoid $13/2$ and the set of permutations of length $n+1$ ending in a descent. This bijection is in the form of invertible algorithm acting on each individual block of any ordered set partition of length n avoiding $13/2$ to give us a permutation of length $n+1$ ending in a descent. Since the set of permutations of length $n+1$ ending in a descent has a cardinality of $(n+1)!/2$, we know that the set of ordered set partitions of length n avoiding $13/2$ must also be counted by $(n+1)!/2$. This result may have applications in sorting data in computer systems.

Leann Washenberger, Brittini Spitzer

Fractals: Endless Geometric Figures

Advisor: Damiano Fulghesu

Fractals, first coined by Benoit Mandelbrot in 1975, are essentially repeated patterns where each "layer" has similar features to the base shape. Formal definitions given for these patterns are widely disputed; however, there seems to be a general consensus about the fact that fractals should always be non-differentiable and have fractal dimensions. Though not popularized until the 21st century (due to



PRESENTATION LISTINGS

computer generated fractal images and their influence on modern art), the concept of fractals have been around since at least the 17th century. There are several commonly used methods for generating fractals, including the use of mathematical algorithms, a fixed geometric rule for separation or a system that uses a sort of branching away from the base. Many of these patterns can be observed in the real world. In addition to being a topic of mathematical philosophy, fractals are seen on snowflakes, in the separation of cells in biology and in the branching patterns of trees.

Megan Nygaard, Megan Sanford

Flexin Hexaflexagons

Advisor: Justin James

Have you ever been so bored in class that you found yourself searching for something to do to keep you from going mad? With one strip of paper, a few folds and some tape, you can make yourself a mathematical toy that you can play with discreetly during class. A hexaflexagon is a manipulated piece of paper that can be flexed along its folds to hide and reveal its various “faces”.

Our presentation will unveil the mysteries of hexaflexagons and will demonstrate multiple ways of constructing various versions of them. We will also discuss how to keep track of and reach each face of a hexaflexagon efficiently by diagramming its transformations. By flexing hexaflexagons and adding some artistic flourishes, you can turn a smiley face into a frown, make a dinosaur chase people, or watch a snake become decapitated.

Megan Nygaard, Megan Toepke,

Andria Kelly

Peeling off the Layers of Wallpaper Patterns

Advisor: Damiano Fulghesu

Have you ever thought about what goes into designing wallpaper? You might be surprised to know that concepts you were taught in your high school geometry class are the basic ideas needed to create the pattern. We researched these patterns and practiced how to create our own patterns. We have discovered the geometric concepts of transformations being used in various combinations to create cohesive designs. The use of frieze patterns can be dated back to at least the Mesopotamians and found as far away as on structures of Maori in New Zealand. We

have been able to create our own frieze and wallpaper patterns, and you can, too.

Seth Meyer

Generalized Peano Functions

Advisor: Damiano Fulghesu

In this presentation, we will show a family of functions in two variables whose second partial derivatives are defined everywhere in, but they are not continuous. In particular, their second partial derivatives are not commutative.

Shouvik Bhattacharya

Limit Cycles of the Algebraic Systems

Advisor: Damiano Fulghesu

A limit cycle is the solution of an autonomous, nonlinear, differential equation. The limit cycle is periodic and isolated in the phase plane. This talk will give an overview of limit cycles appearing in algebraic systems. Some particular examples of limit cycles will be discussed to address their algebraic properties.

MUSIC

Andrew Stermer

Rhythm-a-ning: Drum Soloing in Bop Music

Advisor: Laurie Blunsom

Kenny Clarke, Max Roach, Art Blakey, and Philly Joe Jones are among the most revered masters of Bop style jazz drumming. Throughout its development, Bop music and its related genres have facilitated new and exciting approaches to drumming, especially drum soloing. One of the most striking characteristics of these master drummers is the dazzling artistry they display in performing up-tempo, long-form drum solos. In my larger research project, I will analyze the stylistic and technical features and idiosyncrasies of each player’s approach to this type of performance, based on my own transcriptions. In this presentation, I will discuss how each solo reflects more general stylistic characteristics of Bebop, Hard Bop and other sub-genres of Bop music.

Ian Lahlum

Dies Irae and Contemporary Culture

Advisor: Laurie Blunsom

The Dies Irae, a liturgical plainchant tune originating in the 13th century, is a melody that most people recognize, if not fully understand

the meaning of, without much explanation. The theme originally accompanies a poetic chant concerning judgment day and death, but has been transformed in the last three centuries to portray supernatural powers, witchcraft and death. In the last 25-30 years, the theme has become a common feature in film, used to represent death, evil and even inner psychological struggles. In this presentation, I will discuss some of the most powerful uses of the Dies Irae in films from the last three decades. I will start by describing the Dies Irae and its original context and use. Then, I will focus on two films – “Sweeney Todd” (2007) and “Nightmare Before Christmas” (1993) – and demonstrate how the Dies Irae is used to represent evil, both psychological and supernatural. I will explore the ways in which audiences have retained an association with this music over hundreds of years and transformed it to fit contemporary culture. In the end, I hope to show that this Medieval melody is still relevant to communicating emotion and ideas today.

Michael Lauer

How Effect Pedals are Shaping the Tone of Modern Jazz

Advisor: Laurie Blunsom

Jazz has transitioned through several movements with the advancing technologies used in recording studios and live performances. One new technology that has dramatically affected the guitar is the effect pedal, which changes the tone of the instrument either very little or drastically, possibly sounding like or controlling other instruments. Guitar players have been at the forefront of using the effect pedal to provide a new foundation for improvisation, or for adding nuances to old improvisation techniques. In this presentation, I will analyze transcriptions from old bebop players, such as Charlie Parker, and new age jazz guitar players, such as Wayne Krantz, Pat Metheny and Oz Noy. I will demonstrate that effect pedals have changed the way jazz guitarists view improvisation, much like a movement in itself, while still retaining stylist features of previous genres.

Tara Cherry

Samuel Barber’s violin concerto and Edward Elgar’s violin sonata

Advisor: Laurie Blunsom

Samuel Barber and Edward Elgar both wrote music that captivates and astonishes audiences

and musicians. In particular, their violin music stands out in the instrument's repertoire because of the way they approach the instrument and because of stylistic elements that are so well suited to the violin. In this presentation, I will discuss some similarities and differences between Barber's Concerto for violin and orchestra and Elgar's Violin Sonata in E minor, two works that demonstrate each composer's exceptional writing for the violin. More specifically, I will discuss very basic similarities and differences, such as the time period these pieces were written, and the fact that Samuel Barber is American and Edward Elgar is British. I will also discuss much more detailed similarities and differences, such as tonal elements. One difference would be that Barber's concerto is much more dissonant than Elgar's sonata. I hope to show not only how beautiful these two pieces are, but also the depths the composers went to achieve that beauty.

Troy Viau

Buddhism in Cage's Early Works

Advisor: Laurie Blunsom

John Cage is revered as one of the most influential American composers of the 20th century. It is well known that Eastern philosophies have had a great impact on Cage's later works; however, Eastern philosophies have never been used to interpret Cage's early works. I will analyze some of these early works through a Zen Buddhist lens and show that Cage was showing signs of a predisposition towards Zen Buddhism in these musical works, mainly through the doctrines of non-self and meditation. In the application of these two doctrines, we will see that there are indeed signs of Buddhist ideals in Cage's early style.

NURSING

Amie Bartlett, Jennifer Rekstad

Cultural Competency Increases the Effectiveness of Health Education in Guatemala, Particularly When Addressing Malnutrition

Advisor: Jane Bergland

Helps International, a non-profit organization, is helping alleviate poverty in Latin America. Through Helps International medical trips, volunteers are providing culturally congruent health education, specifically about nutrition, to the people of Guatemala. Such health education

is desperately needed in Guatemala, which has one of the highest rates of malnutrition in the world. It is estimated that in some rural villages, up to 80 percent of people suffer from chronic malnutrition. Malnutrition in Guatemala is not always due to lack of food, but rather lack of food rich in vitamins and nutrients. Diets in rural Guatemala consist mainly of rice and beans, which do not contain all the vitamins and nutrients necessary to grow and thrive. Malnutrition in babies and young children causes stunting of growth. Early stunting of growth is linked to lower IQ and decreased earning potential. As a result, the poverty cycle in Guatemala perpetuates the problem of malnutrition. Understanding cultural aspects of the malnutrition problems in Guatemala increases the volunteers' ability to communicate health education to Guatemalans effectively. Once the cultural barrier is broken, the Guatemalan patients are more likely to understand and appreciate the importance of incorporating balanced nutrition into their diets.

Bryce Tvetter

Work-Site Health Promotion

Advisor: Melanie Schicker

Thirty-six percent of the American population is considered obese. Jobs are becoming more and more sedentary. The information included in this presentation arises from the author's previous research, presentations, work as a personal trainer in the community, as well as theoretical and practical information gathered from his own experiences. This health-related presentation focuses on the rationale, benefits and methods for development of work-site health promotion programs. Research shows that initiation of the right wellness plan has many advantages for both employer and staff members. Strategies have to fit both the organizational culture and the type of work performed. Work-site programs, in order to be effective, are developed using key information such as ergonomic needs, demographics and available resources.

Christine VanAlstyne

Volunteering for a Medical Mission Trip

Advisor: Jane Bergland

The World Health Organization believes quality medical care to be a human right (Miller et al., 2008). Yet, "Poverty is stifling human dignity, hunger is weakening physical potential, and violence is destroying life" for billions left

underserved (Miller et al., 2008, p. 5). For many this is a call to action. Balancing local values with western medicine on this student's trip to Guatemala incorporated Leininger's theory of "Transcultural Care" and a review of local customs (Transcultural Nursing, 2012). Providing medical services is more complicated than a simple lack of resources. Lack of equipment, language barriers and "local standards of modesty can preclude a good physical examination" (Chickering, 2006, p. 190). It is also important to consider the strain on volunteers experiencing the "extreme stress, casualties, poverty, illnesses, and traumatic injuries" (Ullah, 2010, p. 22). Volunteers must be prepared to care for themselves, each other and indigenous peoples. Volunteers find that knowledge, respect and an open-minded approach to local customs, treatments and beliefs improve diagnosis and treatment. With a balanced approach to self-care and caring for others, volunteering has unparalleled rewards. By continued engagement and recruitment the illusory vision of providing quality medical care to all people becomes increasingly tangible.

Jennie Stauffer

Hospice: Myths and Truths

Advisor: Barbara Matthees

Death cannot be avoided. It is part of the cycle of life. There are many myths surrounding Hospice – what it is and what it offers. Hospice focuses on providing care for patients, rather than seeking a cure at a time when a cure is not possible. Hospice offers individualized services for a person's last months or days to make them as rich as possible. Education for patients, families and Hospice staff is vital to assure quality care which is within the scope of practice of the Baccalaureate nurse. This poster will describe Hospice, the care provided and the role of the nurse in supporting individuals and their families during their final journey in life.

Jill David, Jennifer Kastl

Medical Mission Work in Nicaragua

Advisor: Jane Bergland

In February, 2013, six MSUM RN to BSN students traveled to Nicaragua as part of a MEDICO medical mission trip. Over seven days, the team saw over 600 patients, including medical and dental patients. Nicaragua is the second poorest country in the Western Hemisphere. Lack of public health services put the population at



risk for preventable diseases. The RN to BSN students will present the details of preparing for the trip, the work they did there, what the students saw and what they learned. The nurses grew in their medical knowledge, as well as their cultural knowledge. They will reflect on their experiences as care providers, how their nursing practice has been changed by this experience, as well as the profound personal effects of participating in a medical mission trip.

Karen Harris

Indian Health Services

Advisor: Jane Bergland

Indian Health Services is responsible for providing comprehensive health care to over 566 federally recognized tribes, as well as Alaskan Natives. Through a special government-to-government relationship established in 1787 and upheld in our Constitution, Indian Health Services advocates for optimal health in Native people. Native Americans experience some of the worst health conditions in the United States. An interactive clinical nursing experience was completed on Leech Lake Reservation, in Cass Lake Minnesota with the Chippewa Nation. Nursing care was provided to multiple band members in the areas of Urgent Care and Emergency Services. Like most other health care facilities facing budget cuts and staffing shortages, Indian Health Services in Cass Lake is able to perform at an optimal level providing physical, mental, social and spiritual health. Holistic nursing is at the center of every nursing interaction in order to promote culturally appropriate care. It is imperative as our Federal Government continues to cut health care costs, that Indian Health Services receives appropriate funding to continue its mission.

Kristi Baukol

Nitrous Oxide: A Laughing Gas!

Advisor: Victoria Teske

Nitrous oxide (N₂O), an odorless gas, has been used for decades by dentists to alleviate pain and anxiety. Children often undergo painful procedures in hospitals and clinics similar to those done in dentistry, but N₂O is not routinely used by nurses or physicians. The current standard practice of restraint causes children pain and anxiety. N₂O has been proven safe with minimal side effects and it is easily administered. A CINAHL search was completed using the key words nitrous oxide, pediatrics, anesthesiology,

minor pediatric procedures and pain control in children. The research was completed to learn more about nitrous oxide administration to develop a protocol using evidence-based practice. The nurse-administered nitrous oxide program in the clinic will reduce pain and anxiety in children under the age of 18 undergoing minor procedures. With the implementation of this protocol, N₂O can safely be administered in the clinic setting by trained registered nurses.

PHILOSOPHY

Ashley Ramstad

Morality Amongst Defense Attorneys

Advisor: Marilea Bramer

Attorneys have faced many challenges throughout time while practicing within their field. A lot of these challenges have been addressed by ways of trial and error, placing regulations on the field and gaining insight from other fields involving the law. However, placing regulations on the way individuals can practice trial and error applications do not apply to the morality that is questioned across the board among the field of law and how it is practiced. More specifically, many attorneys, namely defense attorneys, have been attacked as being immoral agents while doing their exact job. It seems very hard for many individuals to believe any individual in charge of defending a guilty individual can be a moral agent. In this paper, I have set out to defend these individuals and their right to do their jobs while still being moral agents. I frame my argument with the challenges defense attorneys face when involved in such cases and how they remain true to their own moral selves. This paper will directly relate John Stuart Mill's "Greatest Happiness Principle" and Immanuel Kant's "Categorical Imperative," proving that these defense attorneys are themselves moral agents. Although the two moral philosophies are quite different from one another, they both back up my claim and prove my thesis that individuals who are representing others who are in fact, guilty of certain crimes, are still moral individuals.

Jessica Hillesheim

Does Marriage Promote Inequality?

Advisor: Marilea Bramer

The purpose of this paper will be to identify issues involved in the institution of marriage.

I intend to research the effect marriage has on men and women. It is often reported that women work more hours and experience fewer benefits from marriage than men. So, is marriage merely an outdated institution that encourages inequality in the home? If it is the case that marriages encourage inequality, should we morally discontinue the tradition of marriage? If, as many have argued, women are less happy in marriage and experience fewer benefits, certainly it is a route we ought to consider.

Jessica Wierzchowski

Limit the Family

Advisor: Marilea Bramer

Overpopulation is a current concern in society because of the effects it can have, both on society in general and on the environment. One way to address overpopulation would be to encourage people to have fewer children. Some people have argued that individuals should stop having children altogether, while others have argued that restricting family size violates a fundamental human right to have children. This paper argues for a more moderate solution that addresses both overpopulation and the right to have children: couples should be limited to having children at the rate of replacement. That is, couples would be able to have two children. This paper discusses the economic and environmental benefits of this restriction. The paper also addresses how adoption is a viable option for those who want to have a larger family.

John Goerke

John Dewey and John Henry Newman: Education and Truth

Advisor: Marilea Bramer

The educational philosophy of John Dewey has become the unacknowledged framework for collegiate education in the 21st century. One hundred years after Dewey penned his works on the role of pragmatism in education and the vocation of the teacher as the new prophet, his ideas have become the bedrock on which the modern university is built. In this presentation, we will critically compare the educational philosophy of Dewey with that of John Henry Newman, the Anglican-turned-Catholic theologian and philosopher, who spent seven years running a university in Dublin. His writings from this time include "The Idea of a University," his treatise on educational philosophy. We will engage the topics of truth, progress, the role

of the student and the role of the teacher in each of these two philosophies with an aim to evaluate the merits and shortcomings of each philosophical system.

Kathryn Lucero

The Necessity of Friendship: A Feminist Critique and Perspective

Advisor: Marilea Bramer

To conduct my research, I surveyed students from two classrooms. Class A was world religions, a class offered as fulfillment for general credit. Class B was only for students studying to teach English as a second language. My intent was to compare the assumptions that Class A students made to the assumptions that Class B students made, since the students studying to teach English as a second language were more likely to have had multicultural experiences.

PHYSICS

Deep Kafley

Building and Understanding an Electronic Force Sensor

Advisor: Ananda Shastri

A force sensor works using the piezoelectric effect. In this effect, there is an accumulation of charge due to an application of mechanical stress. A strain gauge will be used to produce this effect when stress is applied. As stress is applied to the strain gauge, it alters the length of the wire it is made up of and hence ultimately its resistance. When this is applied on a balanced Wheatstone bridge, the change in voltage can be calibrated to the weight added to make an electronic scale.

Holle Johnson

Pinpointing the Period of EY Uma

Advisor: Matthew Craig

The period of the presumed variable star EY Uma has, until now, not been listed in any available literature. Observations were taken of the star during the course of eight months and data was reduced using AstrolImage. Changes in magnitude were found using ensemble photometry with seven check stars in the field, and the results were analyzed using a Lomb-Scargle algorithm to create a periodogram. Candidate periods were tested and narrowed down to the current measured period of 0.54905

+/- 0.00005 days, and this period was used to create a phased light curve for EY Uma.

Ishan Subedi

To Build and Study Various Properties of Tesla Coil with Primary Emphasis on Wireless Energy Transfer

Advisor: Ananda Shastri

A Tesla coil transformer was constructed for wireless energy transfer. Maximum transfer of energy is possible if the coils have a common resonance and a correct coupling distance. An oscilloscope was used to find the resonant frequencies, while the properties of mutual inductance were utilized to calculate the correct coupling distance.

Iwnetim Abate

Fabrication and Characterization of Metal-Patterned SrCo_{0.9}Nb_{0.1}O_{3-δ} Thin Film Cathodes with Well-Defined Geometry

Advisor: Matthew Craig

A major obstacle to the study of fundamental properties of candidate cathode materials is the morphological complexity of the electrode-electrolyte interface in fuel cells. This complexity prevents a true determination of the catalytic mechanisms. To address this challenge, photolithography patterning technique has been used to make considerably simplified and well-defined electrode geometries. However, the time required for such fabrication is extreme. In this work, we employ a simple shadow-mask patterning method to fabricate a perovskite oxide-metal composite structure. First, a dense, thin film of SrCo_{0.9}Nb_{0.1}O₃ (SCN) is grown on a Yo_{0.16}Zr_{0.84}O_{1.92} (YSZ) single crystal substrate by pulsed laser deposition. Patterned metal layers are subsequently deposited by DC sputtering with a shadow mask. Thermal stability and electrochemical properties of the fabricated composite cathodes are investigated by optical microscopy, scanning electron microscopy and AC impedance spectroscopy (ACIS).

Iwnetim Abate, Andrew Larson

Nuclear Magnetic Resonance in H₂O+MnSO₄

Advisor: Ananda Shastri

Nuclear precession occurs when nuclei are subjected to a magnetic field. The magnetic torque by this field causes the nuclei to rotate about an axis at an angle. Theory says that the energy given up by a quantum

system depends on the coupling strength between Mn⁺ ions and the proton spins in the hydrogen atoms of the water. Experiments will be performed on H₂O+MnSO₄ and results reported to test this claim.

Johnson Anya, Beau Scheving, Abhinam Acharya, Honors students

Investigating MRI

Advisor: Ananda Shastri

MRI stands for magnetic resonance imaging. MRI uses magnetic fields to generate a resonance frequency which would be used to view an image. The device is made up of numerous coils which will make a magnetic field and maximizes the signal-to-noise ratio. In this experiment a Terranova-MRI Earth's field nuclear magnetic resonance (EFNMR) apparatus will be used to investigate MRI's characteristics and the results will be reported.

Meredith McLinn, Wade Holen

Identifying Materials Using Gamma Ray Spectroscopy

Advisor: Ananda Shastri

Gamma rays (photons of a particular range of energy) are emitted when an electron transitions from an excited state in an atom to a less excited state. By measuring the energy of these photons, we can identify the source emitting them. An experiment will be performed in which a variety of radioactive samples' emissions are analyzed and compared to the predicted results. The results will be reported.

Nicholas Weir

Low Cost Data Acquisition

Advisor: Stephen Lindaas

Controlling experiments and analyzing the data it produces is a fundamental part of being a scientist. Many students' research is constrained by the costs associated by the required equipment. By using multipurpose integrated circuits a high-speed, low-cost data acquisition unit can be built to add more financial freedom to anyone wanting to do high-speed data acquisition. A simple programming language like Python can be used to control the unit and analyze the data. To acquire the data an interface between the computer and an analog to digital converter is needed. Additionally, the interface needs to be able to have general purpose inputs and outputs in order to control experiments. Combining Python and an integrated circuit



interface a data acquisition unit was created at ten times lower cost than buying it commercially.

R. A. D. Ashan Perera, Nathan Heidt

Diffraction of X-rays Using a Crystalline Lattice

Advisor: Ananda Shastri

X-rays are electromagnetic waves, like visible light and can be diffracted. However, a physical slit cannot be made small enough because X-rays have too short a wavelength. Instead, crystalline lattice structures can be used. By reflecting X-rays off of a crystalline structure its wavelength can be measured. The experiment and its results will be reported.

Thomas Rydeen

A Different Approach to Teaching Physics: Using the 5E Method

Advisor: Richard Lahti

A traditional lesson plan involves the teacher lecturing for the majority of the time and then proceeding to do a few examples before assigning homework. If the students are in a science class, they might have a lab portion afterwards to give them more practice. A 5E lesson plan rearranges the order and allows the students to explore the topic before worrying about things, such as vocabulary and any applicable equations. This allows the students to get first-hand experience with the concepts, as well as enjoy labs more than if they were given directions on what to do. In this presentation, an example of a 5E lesson on one-dimensional forces will be taught. This lesson would take place at the beginning of a physics class in high school, and as a result of the nature of 5E lessons, audience participation is required.

Uchenna Ogbonnaya

High Jump! How Does He Do It?

Advisor: Matthew Craig

In this project, I will take a video recording of an MSUM high jumper and analyze it physically. The three key points that I want to cover in the project are the approach, more specifically the end of the approach phase, the plant phase, specifically how much force in exerted over time, and the flight phase, how the center of mass travels during the flight of the jumper. All three of these different phases can be broken down using simple and basic principles from physics.

Wesley Teo

Measuring the Efficiency of a 3D Solar Panel Compared to That of a Flat Panel

Advisor: Stephen Lindaas

With the costs of rising fuel prices, and with the growth at which countries are expanding, alternate energy sources are quickly becoming one of the best answers to these problems. Though there are different types of renewable energy, solar is one of the most abundant and cleanest forms readily available to us. There is constant research in the fields of chemistry, physics and engineering to increase the efficiency of solar panels. The average efficiency of a residential solar panel is 10 percent. This study looks at the efficiency of a cube made of solar panels and compares the efficiency to that of a flat arrangement of solar panels. The efficiency of a cube made of 9 solar panels with the top open and 9 of the same solar panels in a flat arrangement is compared. Theoretically, this 3D arrangement yields a higher efficiency. This study tests the theory. Depending on what the results are, 3D solar panels could be what we use to power our houses in the future.

POLITICAL SCIENCE

Bradley Wenner

The Media's Handling of the BP Oil Spill

Advisor: Barbara Headrick

This presentation will first cover how the modern media influences the public's understanding of complex political issues and the operation of the government. It will then move to coverage of the BP oil spill in the Gulf of Mexico in 2010. It will conclude with how the media's simplistic coverage of the event was essentially a disservice to the public as a whole by missing the larger point surrounding the complexities of the issue.

Cameron Sisk

Change in Media Coverage of US Elections

Advisor: Barbara Headrick

Media coverage of presidential elections has drastically changed in America, especially since the 1950s when television was made widely available to the public. This is an important topic for Americans to understand because the media's new approach to journalism includes strategies to spin facts and manipulate public opinion. Personal aspects of elections often overshadow the politics.

This type of journalism was less apparent before the introduction of television and internet as media outlets. The addition of these new sources of media has caused the industry to become more competitive, hence the need to find excitement in news to make it sell. This competitive, profit-based approach pushes journalists to find scandals, corruption and other personal attacks during elections. Political viewpoints and important race information that appear less exciting to the public is often pushed to the side in favor of more profitable stories. In further exploration of this topic, I will be comparing election coverage of races since the 1950's. The focus will be on journalists' evolving techniques, changes in headline election news and the use of new media outlets over the last six decades.

Cody Meyer

Media Framing and Financial Meltdown

Advisor: Barbara Headrick

In this presentation, I will argue that media framing, in regards to both the "fiscal cliff" and the budget deficits, have led to a "financial panic mode," regardless of actual knowledge of the problems at hand. This is an interesting problem as consumers' reactions to media framing can drive consumer behavior, thus affecting the economy as a whole. I will use journal articles and hard data to argue that media framing can in fact directly affect economic behavior.

Hannah Hanson

Migrant Children in the U.S. School System

Advisor: Andrew Conteh

Immigrant and refugee students from around the world are entering American public school systems in great numbers. They enter the United States for different reasons. These immigrants undergo different stressors and traumas that accompany the move that relates to how and why they migrated. Stressors and trauma will hinder the development of children who do not have their basic needs met. The children in these families become students who are faced with discrimination, changing family dynamics and difficult cultural assimilation. Stressors can lead to anxiety disorders and identity crises at different times in a student's life. All of this will affect the way students learn and their capacity to learn, as well as the development of relationships with their peers and families. It is the responsibility of teachers to have a complete understanding of these students' lives and the

problems they are bringing to school with them. Only then will the teacher be able to assist such students with facing the challenges of learning in school. If used correctly, several legislative acts and programs can support these students and schools with finances and time.

James Murphy

The Supreme Court and the Media

Advisor: Barbara Headrick

There is no question that the media influences how we understand and view politics. How does this influence our views on the Supreme Court? This presentation will try to explain how different media outlets shape our understanding and our views of the Supreme Court. When the Supreme Court has a vacancy and begins the process of filling the new spot, the court receives a great deal of media coverage about the potential new judges. But, does the media relay only facts regarding the appointee, or is there an unfair bias in an attempt to derail what should be considered a fair process? Does the media have a moral obligation during such a historical event to report all sides fairly, or are they free to report as they see fit? Can the media truly affect policy within the Supreme Court, or are they unaffected by these attempts? I will attempt to answer these questions, look at how the media portrays the judges once they hold the position, find what effect (if any) it has on the public, and how it can influence our views of the court with the decisions they make while on the bench.

Jordan Risher

Nuclear Security

Advisor: Conteh, Andrew

In this paper, I will attempt to make a critical analysis of the nuclear strategy of the United States of America, in relation to other developing countries and their attempts at acquiring nuclear material. This paper will be focused on the possible outcomes of non-state actors acquiring nuclear materials from countries who have not properly secured their nuclear materials. I will attempt to show that secret nuclear programs can result in less secure arsenals because the cloak of secrecy prevents other nations from contributing to a successfully secured nuclear program. I point out that the accident in Chernobyl devastated a very large region, affecting agriculture and water supplies. Also, we must note the nuclear security of other countries such as Iran and

North Korea. I will also elaborate on several agencies responsible for nuclear security in the United States of America, as well as international coalitions on nuclear security. There will also be an analysis on the United States Nuclear Posture Review for the year 2010, making and summarizing main talking points. Focusing on protecting and maintaining whereabouts of nuclear scientists is also an important aspect of nuclear security. A brief introduction to various treaties relating to nuclear postures around the world and what that means in terms of global security will also be presented. Overall, this paper introduces basic ideas surrounding nuclear security and global threats to it. The main argument in this paper is that, in order for there to be proper nuclear security, there must not be secrecy among nuclear armed states.

Jordan Risher

The Prevalence of Media Bias

Advisor: Barbara Headrick

This will be an in-depth analysis of the commonalities of media bias, and in what aspects of reporting will there be the most noticeable bias in the mainstream media. The argument that there is a bias in media has been being reported since the end of George W. Bush's tenure, and has continued through President Obama's terms in office. What are the underlying causes of media bias, and who is the main culprit? These are things that we need to discover and thoroughly cover in our presentation. In addition, we will discover the role of the media as a business and its impact on networks being biased to maintain its integrity with its advertisers and target viewing audience. This presentation will be informative through extensive research on the subject of media bias and its commonalities.

Peter Thein

Gun Control Portrayed in the Media.

Advisor: Barbara Headrick

The topic I have chosen to speak on is one that has gained national attention in recent months, and has drawn interest from both sides of the political spectrum: gun control. I plan to show how the media is portraying the issue, as well as how it is being presented to the public. I think this topic is important enough to warrant examination because it affects many American citizens; some see the issue as a battle of

constitutional rights, others as an issue of public safety. I plan on answering this question by scouring the media and looking at both sides of the question, albeit in a non-partial light. I plan to present the information I gather and allow the listener the opportunity to draw his or her conclusion from a presentation that presents both sides of the story and shows that sometimes media sources slant the message one way or the other.

Shawn Carlson

Media's Influencing the Public on the Issue of Gun Control and Mental Health.

Advisor: Barbara Headrick

Media coverage is influencing the public's understanding of the political issues of gun control and mental health reforms. This is one of the hottest topics in our country. The debate over gun control and mental health issues is a highly opinionated topic. Gun news of some form remains a top story in the news almost daily. The media informs the public on gun control debate stories by sensationalizing the topic to create more infotainment in the news. Because of this, real, needed mental health care reforms are being overlooked and under-publicized. Because of this, laws are being made on how many bullets a gun can have instead of fixing a broken mental health care system. I will be looking at what types of events the news has been giving the public. I will also look at events that are not covered by the media. I will compare how the information provided to the public does influence and incite the public. I will analyze examples of media sensationalism of the gun control topic. I will analyze examples of how this has created negative political actions. I will analyze how media overlooks mental health reforms as news.

William Cafferata

Media Covering Conflict

Advisor: Barbara Headrick

The media is one of the most influential machines in the world today. It has the power to reach millions of people daily and influences us in our everyday lives. Throughout this paper I will discuss how media coverage on conflicts abroad affects public opinion, and whether this causes the U.S to enter conflicts abroad. To do this, I will be analyzing the CNN and FOX news effect, while also analyzing the media coverage leading up to the U.S.'s involvement in Iraq, Afghanistan and Rwanda. This is important to



understand because if the media does influence conflicts abroad, it means that the media has an even greater responsibility to the public to make sure to cover the whole story when dealing with conflicts abroad.

PSYCHOLOGY

Adam Boles, Britney Bachmeier, Rebecca Spanier

Establishing the Reliability of the Preschool Receptive Vocabulary Measure (RVM) and Expressive Vocabulary Measure (EVM)

Advisor: Lisa Stewart

The development of a robust vocabulary is critical in the development of early literacy skills. Not all children have the vocabulary skills needed to learn to read when they enter school, so ways to improve vocabulary through interventions in preschool are needed. One challenge with vocabulary intervention research is existing vocabulary measures are too global to be sensitive to specific intervention effects (National Reading Panel, 2000). To address this, Stewart, Kuntz and Richards (2013) piloted the Receptive Vocabulary Measure (RVM) and Expressive Vocabulary Measure (EVM). These measures use specific words from books used in their read-aloud research, but the reliability of the EVM and RVM is unknown. In order to use the RVM and EVM in future research, reliability of the tests should be established. The participants for this study were approximately 15 3 and 4-year-old children from the MSUM Early Childhood Center. Participants were given the RVM and EVM two times within a three-week period. We predict the RVM and EVM scores will be similar across short periods of time showing test-retest reliability above $r=.80$, and that different people scoring the same test will come up with the same score, showing inter-rater reliability above $r=.90$.

Bria Itzen

The Effects of Self-Esteem and Induced Self-Awareness on the Likelihood of Participating in Prosocial Behaviors

Advisor: Christine Malone

The role of induced self-awareness related to participants' engagement in prosocial/helping behaviors will be explored in this study. Forty undergraduate participants will be in a

condition with a mirror or without a mirror. Each participant will be told this is a study about the effect of self-image on reading comprehension. Participants will then be given a self-esteem scale to complete, followed by a reading passage and five multiple-choice questions. After completing both, participants will then be asked, "I was wondering if you'd be willing to help me hand out 20 psychology club flyers?" It is predicted that participants in the mirror condition will engage in the most prosocial/helping behaviors. It is also predicted that higher self-esteem participants will engage in prosocial behaviors than participants with lower self-esteem. Results will be discussed in the context of the objective self-awareness theory.

Carmella Jasperson, Emily Lyons

Investigating Tendencies of False Memories on Implicit and Explicit Memory Tests

Advisor: Christine Malone

How does sound and spelling information interact in the early stages of spoken word recognition to affect memory on explicit and implicit memory tests? If sound and spelling information determine the pool of candidates as the spoken stimulus unfolds, study words with shared sound and spelling (parasite) should activate their corresponding target (paragraph) to a great extent during study and seem very familiar at test. Participants taking a recognition memory test (an explicit test) should then make a high rate of false recognition errors to their target (i.e., report having heard paragraph on the study list, when, in fact, it was parasite). Further, if this automatic activation process during study is indeed taking place without the listener's conscious awareness, participants taking a word fragment completion test (an implicit test) that taps into weaker memories beyond the listener's awareness should be even more sensitive to these activation effects. Evidence for activation will appear in the word fragment test as facilitated completion of the target word fragment (P_RA_RA_H) after a shared information study word (parasite or paragraph) compared to an unrelated study word (minimum).

Megan Boeddeker

Discrimination of Emotion in Music: An Eye-Tracking Study

Advisor: Elizabeth Nawrot

Emotional expressions can be communicated through different cues, including facial expressions, tone of voice, even music. Past research has shown that adults, as well as children and infants, are able to judge the emotional content from these cues correctly and consistently (Nawrot, 2003). In addition, happiness and sadness are easier to identify even in unknown musical stimuli (Mohn et. al., 2010). In this study, 45 undergraduate students were presented with affectively concordant and discordant pairs of facial and musical stimuli and asked to rate the affective concordance and discordance. In addition, their eye movements were recorded using infrared eye tracking. Results show that participants did, in fact, rate affectively concordant and discordant pairs significantly differently, $t(44)=13.56, p=0$. Preliminary eye-tracking data further indicates there are differences in gaze patterns between the concordant and discordant pairs. This suggests that people may analyze emotionally concordant and discordant stimuli differently at an early level of processing.

Co-author: Bria Itzen

SOCIOLOGY

Allison Edmonds

Humanitarian Aid: The Use of Crowd Sourcing to Develop Awareness and Knowledge of Social Problems

Advisor: Karen Branden

A new wave of humanitarian aid process has opened avenues for new solutions to continuing social problems. Crowd sourcing, bringing people together to obtain ideas, services and content, is the core of crisis mapping. The function of crisis mapping is to assist communities experiencing any type of crisis by collecting any and all pieces of information about the community and putting it all in one document. This information is categorized and analyzed based on the desired outcome. This paper examines how crisis mapping can reveal how gender-based violence within Native American communities is presented through media. The document generated through the

crisis mapping process could then point to areas where information is lacking, or where attention is needed. This document can also lead to possible solutions to gender-based violence among Native Americans.

Allison Edmonds

Violence in Adolescent Dating Relationships

Advisor: Deborah White

The purpose of this study is to discover how gender, race, age and prevention programs affect the problem of teen dating violence. By observing these variables, one may gain insight on the need for future prevention or counseling programs that can be geared toward specific factors of teen dating violence. The dataset used in this study is called Experimental Evaluation of a Youth Dating Violence Prevention Program in New York City Middle Schools, 2009-2010. The study found that only race has a significant relationship with teen dating violence.

Alyssa Breitbach

Cleanliness of Household and Its Relationship to Health

Advisor: Susan Humphers-Ginther

Americans have been annoyed with the chore of cleaning since the broom existed. But does it really matter how clean a household is? Do cleanliness have an effect on health? It turns out that if a person lives in a dirtier house, their home is more likely to be inhabited by parasites and bacteria. These unwelcome guests can be more than an inconvenience; they can cause severe health issues. Being able to prevent these issues should be a high priority in a person's household. Using information from the General Social Survey, we can see that there is a correlation between cleanliness of a household and health. The cleaner a person's household, the more likely they are to be healthy. The findings of this research may be of use to health professionals in terms of being able to influence their patients' health. Depending on a person's lifestyle, income, environment, or schedule, keeping a cleaner home may be difficult to do; however, if it reduces the amount of sick leave or time spent being ill and miserable, it may just be worth it.

Andrew Sailer

Get Your DragOn

Advisor: Deborah White

Drag culture is often seen as funny, ridiculous and homosexual. The wigs, glitter and all-around glamour tend to mask the greater underlying issues that drive drag culture. Through my research, I examined drag culture through several social lenses. First, I identified what drag culture actually is and several of the factors that drag performers must overcome. I then look at the history of gender bending and how it became what it is today. Finally, I explore other venues in which drag culture has influenced. Most of my research comes from journal articles and video documentaries, as well as my own personal experiences with drag culture. My research resulted in the identification of several factors that motivate many forms of gender bending in different social venues. By identifying these universal themes, it challenges societies current assumptions of gender, sexuality and personal identity.

Ashley Gallegos

Health Care in Cuba

Advisor: Susan Humphers-Ginther

Health care is a global issue, whether it is trying to establish a health care system that works, or by simply trying to form a health care system in areas that are in need of one. Health care is to be regarded as a social or human right, evenly available to all, making it important to find a health care system that will be successful to the people in which it benefits. According to the Merriam Webster dictionary, the definition of health care is defined as the following: "the maintaining and restoration of health by the treatment and prevention of disease, management of illness and the preservation of mental and physical well-being through the services offered by the medical and allied health professions." It is important to investigate the many different forms of health care in order to decide which methods of health care are or can be successful. More specifically, looking into the health care of other countries, which lead to my project; "How has Cuba successfully established a primary health care system being a third world country?" This project will discuss the development of the Cuban health care system and how it's successful.

Ashlyn Jahnke

The Health Effects of Sleep Deprivation

Advisor: Susan Humphers-Ginther

It is a well-known fact that getting adequate sleep can make one feel better, but often people overlook the damaging effects of not getting enough sleep. Sleep deprivation has been known to lead to a stronger sense of emotional feelings such as stress and depressed thoughts. It is essential that researchers explore the consequences of sleep deprivation in order to fully understand the importance of sleep and the damaging effects sleep deprivation can have on one's mental health. In this paper I will explain the link between sleep deprivation and stress, depression and problems with emotions in order to educate people in the importance of sleep.

Brittney Hanson

Health Status of the United States: After the Health Care Reform

Advisor: Susan Humphers-Ginther

Many Americans today are without health insurance coverage. The United States' health care system runs off of privately owned sectors, which limits the access of coverage to many who cannot afford insurance. In 2012, the U.S. spent about \$8,233 per person on health care; and that was mainly on treatment instead of actual prevention. In other countries, they provide a universal health care system which covers all citizens, low-income and high-income. "On March 23, 2010, President Obama signed into the law the Patient Protection and Affordable Care Act" (Huntoon 2011). This will make the United States have a universal health care system, much like our neighboring country Canada. My question is, how will the newly placed Health Care Reform affect the citizens of the United States? I will review the current issues on the health status of the United States. I will also review the new United States' Health Care Reform and its benefits to the United States' citizens, and in order to predict the outcome of the effects of universal coverage, I will compare it to the Canadian universal health care system.



Chanel Johnson

The Oral Health Issues of Americans Related to Systemic Health

Advisor: Susan Humphers-Ginther

An individual's dental health is a reflection of their systemic health. Education is necessary to inform people of the risks associated with poor oral health. Access to dental and health insurance is critical in ensuring that a person receives proper dental education and treatment. This paper will discuss the systemic health effects that poor dental health contributes to. I discuss health problems such as cardiovascular disease, diabetes, kidney disease, bronchitis, arthritis, conceiving difficulty, pre-term labor and low birth weight, and how periodontal disease contributes. I also discuss proper response and the actions needed to improve oral health in order to improve systemic health. Actions needed in order to improve dental health are often not accessible to those not covered by health insurance with a dental policy. This paper stresses access to affordable dental insurance coverage to ensure overall health.

David Morrow

Poverty: A Major Problem in the United States

Advisor: Susan Humphers-Ginther

This presentation will deal with the study of poverty and health in the United States. There have been many studies in the past that have shown a correlation between wealth and health, so because this is a common problem, it is of the opinion that this study should be looked at. The United States is one of the wealthiest nations in the world, and because of this, our poverty rate should not be nearly as high as it is. In order to learn more to change things, we as a society should look at things we think are unpleasant and to look at what happens to a person that cannot support himself or herself properly.

Emily Winefeldt

An Exploration of Japanese Cultural Influence on the Phenomenological Perception of Beauty

Advisor: Lee Vigilant

In American society, people place a considerable amount of focus on outward appearance and beauty. Our media is filled with magazines, TV shows and advertisements that claim to know the newest and most fashionable product. This study aims to determine how phenomenological perceptions of beauty change in the context of

culture. Participants in this study are originally from Japan and currently attend Minnesota State University Moorhead. The methodology consists of five in-depth interviews that focus on both personal and cultural concepts of beauty. Five themes found throughout the interviews included eyes, make-up use, tattoos, weight and media. The results indicate that Japanese culture influences interviewees' perceptions of beauty.

Eva McClain

Happy Marriage and Increased Health Satisfaction

Advisor: Susan Humphers-Ginther

Health satisfaction is subjective. With so many chronic diseases afflicting the population it is important to discover what aspects of a person's life have a positive effect on how they perceive their health. Stress plays a significant role in illness. This paper examines how social support structures improve health by looking at the relationship between marital happiness and health satisfaction. The hypothesis of this is that if one experiences a happier marriage, they will also experience less stress and have more social support. As a result, they will experience more satisfaction with their health. Education is used as a control factor to further account for the impact of stress on not only actual disease, but on the perception and satisfaction one experiences. Education is connected with higher incomes and generally higher social class. Both of these are related to reduced illness. The other question addressed is whether these factors simply reduce illness, or if they also improve general life satisfaction, including health. This is an important connection because we know that stress and social class are protective factors to one's health, but are there contributing factors within the social environment that can be impactful in the individual's health? Education, for example, increases marital happiness, increasing health. Financial aid is a federal program that allows individuals of lower socioeconomic status to fund a college education. This one program offers the opportunity to improve the social condition and health of the larger population.

Fay Dawson

Growth of a Binge Drinking Culture among Young Adults

Advisor: Susan Humphers-Ginther

General social patterns are currently revealing high rates of binge drinking among the 18-25 age group. Particularly in Western societies, drinking is now viewed as a social activity, which is replacing more traditional activities, and ultimately becoming a social problem. We find ourselves in what can be called a "binge drinking culture," where the norm for young adults is to go out and drink excessively, pushing their bodies to the limit. According to the CDC (Centers for Disease Control and Prevention), "About 90 percent of the alcohol consumed by youth under the age of 21 in the United States is in the form of binge drinks" (2012). Excessive consumption of alcohol needs to start being thought of as a problem not only affecting individuals, but families and society, too. On the individual level, the growth of a binge drinking culture needs to be addressed as a serious health problem. Research links binge drinking with health problems, such as high blood pressure, stroke, cardiovascular disease, liver disease and possible future dependence on alcohol. My data for this project was collected from the General Social Survey (GSS) Cumulative Datafile 1972-2010. This paper will be investigating why the ages of 18-25 are the most susceptible to binge drinking and proceed to make cross-comparisons with other countries.

Hailee Hovde

Smoking and Individual Health

Advisor: Susan Humphers-Ginther

According to the General Social Survey Cumulative Datafile 1972-2010, individuals who smoke cigarettes rate their own health condition lower than those who do not smoke. Smokers are increasing their risks of certain health issues such as cancer, heart disease, lung disease and even infertility (CDC, 2012). This paper will examine the social aspects of smokers, including why they started, how often they smoke and the condition of their health. This paper will also take a closer look into the tobacco industry and why it has been so successful.

James Tucker*Income and Health*

Advisor: Susan Humphers-Ginther

Income has a direct relationship with health. In my presentation, I intend to portray this as a positive relationship that shows how higher income can lead to better health. And in turn, lower income can be directly related to poorer health. Individuals with higher incomes have better access to health care services, tend to be under less stress, have better diets.

Jeanine Durant*Social Factors are Contributing to the Growing Obesity Epidemic*

Advisor: Susan Humphers-Ginther

The obesity epidemic is growing rapidly throughout the United States and currently affects millions of Americans daily. There are numerous social factors that are contributing to this epidemic, and it is imperative that actions are taken to reverse this growing disease. Obesity can lead to many other health complications, such as diabetes, heart disease and hypertension, which can sometimes be fatal. With obesity being such a huge problem, these people don't have to conquer it on their own. Some of the factors contributing to obesity include stress, lack of exercise, poor diet, employment and social class. Drawing from previous obesity studies and GSS crosstabs, this paper will examine the impact of the contributing factors, as well as the efforts taken by state health care facilities, employers, schools and citizens to try and reduce obesity rates. This review indicates how a little help from everyone and a few lifestyle changes can help get people back on track to a healthier life.

Jenna Eveland*Lack of Access to Dental Care and the Overall Health Implications*

Advisor: Susan Humphers-Ginther

I seek to find reasons as to why a lack of coverage or public assistance in dental care exists, and how our health is impacted. I also wish to discuss a few of the health implications dental neglect has on one's body. All over America, there are people who have to deal with daily pain and discomfort caused by a lack of access to affordable dental care. The health implications caused by dental infections, abscesses and disease are often deadly when ignored. More and more people are losing their jobs, and subsequently, their health insurance.

Many see dental care as a luxury with no other purpose than to suit aesthetic goals. I am looking to evaluate a correlation between overall health and lack of dental coverage to discuss possible causes. Awareness is needed, and accessibility to affordable dental care is crucial to living a long and healthy life.

Jenna Hansen*Exercise and Health*

Advisor: Susan Humphers-Ginther

The numbers of Americans who are overweight is staggering. It is important to determine the benefit(s) of exercise on health and their relationship on health care spending. The main source I have drawn my information is from The Journal of American Medicine. I review the link between exercise and Americans suffering from specific chronic diseases. This review highlights the need for exercise with educational appeal for the targeted need. I learned that the Northeast is the healthiest area. This paper aims to get the other areas of the country in the same health ranking as the Northeast in regards to exercise and the amount of money spent on health care.

Jennifer Douglass Gebro*The Barriers That Face Women Involving Treatment of Substance Abuse/Dependence*

Advisor: Susan Humphers-Ginther

There are many barriers that face women, particularly in terms of treatment for substance abuse and/or dependence. This project takes an introspective look into social factors that contribute to the intersections between the uniqueness of the female that is placed into male derived settings of what treatment is supposed to look like, and to gain insight on this population.

Jeri Elliott*Behind Your Back: The Birth Control Dilemma*

Advisor: Susan Humphers-Ginther

Teens in this country are in a weird place; they are no longer children, yet not quite adults, so which choices should we leave to them, and which choices should still be made for them? My topic is birth control. Should we leave it to our kids to get what they would like, even if it is disapproved by their parents? The reason there are so many teen pregnancies is because of the disconnection between the older individuals who set policies and those who actually need birth control. Let's face it, kids will be kids. Don't you want to give them a

safe and clean environment? I plan to look at what is really out there for teens and the accessibility. If parents really are against their kids getting birth control, how confidential is it to those who feel like they need it? Although, this may seem like an uncomfortable and touchy subject, I feel it is necessary to talk about so we can keep our kids safe.

Jillian Bryant*End of Life, Start of decisions*

Advisor: Susan Humphers-Ginther

As our aging population nears its final destination, the question of end-of-life care runs to the forefront of the mind. Hospice patients not only teeter on the edge of mortality, but they and their families are confronted by many dilemmas. Should a patient be cared for until their natural death? Can they request assistance in ending their life early? Or is it in the rights of the family to request the ending of life support? Opinions on end-of-life care fluctuate from age to age and race to race. Why is hospice more popular among blacks than any other race? Why do the young favor doctor-assisted death rather than the elderly? These are a few questions I seek to expand on, to study how our different backgrounds change our views.

Kaleena Briceno*Stress and Your Health*

Advisor: Susan Humphers-Ginther

Stress, we all have it. Think about it, every day we get up and deal with some form of stress, be it kids, school, work, relationship issues, conflict, financial stress or the decisions we make. Every corner we turn, there is some new kind of stress waiting for us to deal with. What is the result of all this stress? How is it affecting our overall health? I will compile research through scientific studies, peer review reports, medical articles and other findings related to stress and our health. It is my hypothesis that the more stress we are subjected to throughout our day and lives has a direct correlation to how our overall health is. This is an important area for research because it affects everyone at every age and in every type of population group.



Katherine Bullock

LGBT Suicide Rates among Teens in the United States

Advisor: Shannon Terry

In the United States, the rate for suicide among teens who identify as lesbian, gay, bisexual, or transgender (LGBT) is significantly higher than that of their heterosexual peers. By examining various articles, I was able to illustrate just how significant the differences are between heterosexual and LGBT suicide rates in teens and where this problem is most prevalent in the United States. By doing this, I was able to make a connection as to why certain areas have a higher rate of LGBT youth suicide, and then draw conclusions as to how best to alleviate this problem. With this knowledge, I hope to push for solutions to significantly lower the rate of LGBT youth suicide in the United States.

Krista Topp

Smoking: A Contributing Factor to Many Health Problems

Advisor: Susan Humphers-Ginther

Smoking is a huge cause for many health problems all over the world. It can cause multiple cancers, many different cardiovascular diseases, chronic obstructive pulmonary disease and many other minor health problems. Public smoking bans are a huge help to cutting down on the health problems. The number of deaths caused a year from smoking is shocking. It can be from smoking yourself, or even just secondhand smoke. Smoking negatively impacts health, increasing one's risk for many cancers and diseases. This review will extend everyone's outlook on all of the factors that smoking has on your health. Some of these factors get overlooked, but all need to be considered. The public must be informed in order to bring change to the states. This information can be used to explain to patients what actually is slowly happening to their body with every cigarette they smoke.

Kristin Tingblad

Mental Health and Aging: How Societal Factors Affect the Well-Being of Older Adults

Advisor: Susan Humphers-Ginther

The U.S. is seeing an unprecedented increase in the older population, which means future health care services will be in great demand. We will also have to give more attention to the area of mental health, which I believe has different

implications for older people. More research needs to focus on how social factors affect cognitive health in the aging process. Some important considerations include mental health and ageism, risk factors for depression in the elderly and the differences between depression and dementia. In this project, I will assess how American society currently views and treats problems associated with mental health in the elderly and how we can improve these efforts. Hopefully, this presentation will encourage more research and discussion of this issue to eliminate the stigma of aging, increase mental health knowledge and prevention, and ultimately enhance the well-being of our older generation.

Miho Shimoda

Health and Life Expectancy in the U.S. and Japan

Advisor: Susan Humphers-Ginther

The United States is one of the wealthiest countries in the world. However, life expectancy is low compared with other developed countries. American life expectancy is low because of several problems, including obesity, eating habits, lack of exercise, the extremely costly health system and violent death. Comparing problems between America and Japan, which has high life expectancy, are very different in their eating habits, lifestyles and health systems. To improve life expectancy in America, people should change their lifestyle, even if their health system is not good enough. People can make themselves healthier if they could improve their knowledge of healthy eating habits. I will use GSS for comparing condition of health for American younger generation and older generation. Also, I will research Japanese life expectancy.

Minhwa Kang

The Association Between Educational Degree and Health Attitudes

Advisor: Susan Humphers-Ginther

When the health system is demonstrated in terms of social perspectives, it dramatically affects lifestyle from general income to the standard of living. Especially, average salary and education have a significant relationship with the standard of living. It is believed that people who have had better opportunities to make greater salaries with higher education are going to be taken care of better by the health care system. Highly educated people have a tendency to take care of their health by

picking up from social norms. They have more of a chance to spend time on health-related activities compared to people who are struggling monetarily. There is statistical data showing the relationship between education level and health care behavior. Therefore, I research what will be the consequence measured by highly educated people in our current society.

Nana Akua Boadu

Which is Healthier: Being Married or Being Single?

Advisor: Susan Humphers-Ginther

Many theories surround the correlation between the average health of a person and their marital status. There are advantages and disadvantages to being married or single, especially when it comes down to health. However, in the long run, one group generally tends to have better health. One could argue that married people are considered healthier because, even though there is a lot to deal with in their daily lives, they have companions. Therefore, they are able to release stress and anxieties that may eventually lead to bad health. Another argument states that single people are the healthiest group because they are not obliged to deal with other people's issues and problems besides their own. By not having to exert energy towards others, their stress levels are balanced and energy barely drained. The research question that will be explored is whether one's marital status determines their health, and the hypothesis states that because married people have daily companions, they are able to deal with everyday issues without having uncontrollable stress levels.

Sarah Schaan

Why is American Health Care Ineffective? Understanding the Role of Non-Compliance

Advisor: Susan Humphers-Ginther

America spends the most money on health care in the world, yet it is ranked among the lowest in developed countries for life expectancy. Americans have much to blame for their poor health, such as the increasing sedentary lifestyle and processed-food diet. Yet, faced with these changes, a system that uses an average of \$2.3 trillion for health care annually should be able to compensate. Much of the breakdown of the health care system can be attributed to the changing attitudes of personal responsibility and the ineffective communication that occurs between health care professionals and their

patients. Also, overloading facilities may exacerbate the situation by exceeding the abilities to provide quality care. American health is in desperate need of an overhaul. However, without first looking at the problems that we may face with basic compliance, time and resources will continue to drain away. This paper will examine the factors of non-compliance and their role in the health care breakdown. The GSS and peer review articles as well as other academic studies will be used as references. A reduction in these factors will pave the way for progress.

Scott Romero

Racial Inequalities in Health Due to Social Class System

Advisor: Susan Humphers-Ginther

Racial and ethnic health inequalities are a real and persistent problem in our nation. Although today's problems may be deeply rooted in the past, what's important is that they threaten our future health and well-being. This paper will look at a couple of causal interpretations of racial inequalities linked to health. The initial approach views race as a biologically meaningful category, and racial inequalities in health as a reflecting inherited vulnerability to disease and illness. The next approach treats race as a substitution for class and views our nation's social class system as the real culprit behind racial inequalities. The lived experience of race influences what resources are available, where individuals are likely to live, and what environmental exposures they face. Even though the overall health of the nation is improving, minorities suffer from certain diseases up to five times more than the rest of the nation. The main implication that this paper will express is to acknowledge that race, while not a biological reality, too often shapes life opportunities and health and in order to bring about change policies need to reduce the distance between people and employment/health care opportunities.

Sean Bevans

Religion vs. Health

Advisor: Susan Humphers-Ginther

With religion becoming a more pertinent topic for many, it is interesting to know how religion can affect someone in a health-related way. One's religious affiliation could have an effect on health. People who associate themselves with religion accept certain core values and

beliefs. Rituals, in addition to these values, could be playing a role in the health of followers in these religions. More research in this area is important to show how these beliefs could be affecting their health across the major religions. Does one's religious affiliation have an effect on how healthy the individual thinks they are? With studies already having to do with a person's religious affiliation, and how people view their health, my question will combine the two to find any possible correlations. This will be useful to people, from a sociological standpoint, who study religions, and to people who associate with religion, to help better understand any health aspects on religion. By the use of already available online data, my research will attempt to show how some religions might be better or worse for your health than others.

Violet Schroeder

Midwifery

Advisor: Susan Humphers-Ginther

Over the years, I've had many cousins talk about their birthing experiences. Only one of them has said they had a good experience. This cousin used a midwife for her second and third child, and she said that it went exactly how she wanted. This is something that caught my attention because I believe that hospital births are stressful and unhealthy for the mother and child. There are many reasons why midwives are healthier than doctors. Three major reasons are the following: doctors use too many interventions, doctors do not always attend you in delivery, and most doctors do not create a bond with the mother. What will hopefully be shown is that it is more cost beneficial to have a midwife, and that it is better for the mother to have a midwife.

SPANISH

Jennifer Glenski

Women during Franco's Dictatorship in Spain

Advisor: Benjamin Smith

Francisco Franco ruled as the dictator of Spain from 1936 to 1975. Franco's views were conservative, traditional and heavily influenced by Catholicism. He was devoted to the role of women as mothers and wives. His views impacted attitudes in Spain towards women through his governance of the country. This presentation examines the situation of women

and attitudes towards women, during the years of Franco's dictatorship in Spain.

SPECIAL EDUCATION

Heidi Campbell-Beer

Response to Intervention: Coordinators' Perceptions for Effective Implementation

Advisor: Camille Brandt

The purpose of this project was to compile information about response-to-intervention (RTI) implementation and perceptions of RTI coordinators. Information was gathered through face-to-face interviews with area RTI coordinators. Analysis of interview data identified that implementation of RTI is different in each school. Chapter four is comprised of information taken from interviews with RTI coordinators where they are already utilizing RTI in their school. This project is geared toward those wishing to implement RTI or strengthen their program. This information will help those who want to learn more about what it takes to implement RTI more efficiently.

SPEECH AND LANGUAGE PATHOLOGY

Amanda Nordby

Evidence Base to Support the Use of Brain Training Tools to Promote Healthy Cognition in Older Adults

Advisor: Nancy Paul

The purpose of this study was to address the following question: What evidence is there to support the use of brain training tools to promote healthy cognition or treat cognitive decline in healthy, normally aging adults? Six brain training tools were chosen to be included in the systematic review of literature. These tools were divided into three subareas: inexpensive and easily accessible, online and internet based, and programs marketed for purchase. These tools were compared using the following criteria: cost, time required, ease of use, cognitive benefit claims, theoretical basis and evidence to support benefits. Results suggested that the use of brain training games could be beneficial in keeping the mind active and improving overall cognition. However, this conclusion has not been strongly supported by published research found



PRESENTATION LISTINGS

in this study. Although evidence identified was limited for all of the tools overall, each of the products could be supported by theory, especially when applying the theory of crystallized and fluid intelligence. Overall consensus among researchers was in support of keeping the brain active throughout one's lifetime. Further independent, and/or longitudinal research is recommended to examine if these and other cognitive interventions can prevent or delay cognitive decline in the aging populations.

Amanda Walker

First Year Graduate Students' Perception of Clinical Experience in Speech-Language Pathology Master's Programs

Advisor: Kris Vossler

The purpose of this study was to determine how graduate students feel about the clinic requirements of speech-language pathology graduate school programs in North Dakota, Minnesota and South Dakota. This survey-based research study was used to gather information about students' perceptions of the clinic experience at the beginning of their first year of graduate school. The questions in the first section of the survey focus on gaining demographic information about the students, such as how many hours and what types of clinic experience the students were exposed to during the undergraduate program. If students did not have clinic experience as an undergraduate student, then they indicated this on the survey and skipped the section of questions pertaining to clinical experience. The second section of the survey focused on collecting information about the students' perceptions of clinic experience as a first-year graduate student. Results from this study were used to report whether or not students with undergraduate clinical experience felt more comfortable completing various tasks in the clinic setting as a graduate student.

Christina Hughes

Coaches' and Athletes' Knowledge of Traumatic Brain Injuries in High-Contact Sports

Advisor: Richard Adler

This study determined the amount of knowledge high school athletes and coaches in high-contact sports had on Traumatic Brain Injuries (TBI) within 90 miles of Fargo, North Dakota. Coaches of high impact sports were interviewed for this study. The

coaches were asked to provide insight to the athletes' knowledge and/or education on TBIs. Information about protocol for prevention and education of TBIs was gained through the interviews as well. As a result of the interviews, two handouts were created highlighting essential information the coaches believed the student athletes and their parents should know prior to engaging in the sporting activity. This study aimed to provide sufficient supplemental education to high school athletes in the Minnesota and North Dakota about TBIs and their lasting effects.

Heidi Iwashita

Using Technology to Augment Aphasia Treatment

Advisor: Nancy Paul

This research investigated whether a home program of technology-enhanced aphasia treatment improved a targeted communication skill for an individual with chronic aphasia, and explored client-based and software-based factors identified in selecting suitable technology. Two participants with moderate or severe chronic Broca's aphasia between the ages of 55 and 65 participated in the study. Each participant completed the short form of the Boston Diagnostic Aphasia Examination (BDAE) (Goodglass, Kaplan, & Barresi, 2001) and a customized assessment focused on the targeted skill. One participant targeted verb retrieval with the Bungalow Software program Aphasia Tutor 1: Words + Outloud for five weeks, and the other targeted writing with the iPad application Writing TherAppy by Tactus Therapy Solutions for eight weeks. Both participants improved performance on trained tasks. After the intervention, the participant who focused on verb retrieval demonstrated a higher complexity index on a conversation sample and the picture description task, but not the customized assessment. The other participant showed improvement on writing on the BDAE, the customized assessment and the picture description task. Both participants provided positive feedback about the experience of using technology. Key client-based selection factors identified were access, literacy, attention and independence. Key software-based selection factors were age-appropriateness, ease of use, simplicity of task structure and customization options. Suggestions for further research include an experimental study investigating how intensive treatment of a targeted skill improves overall language

complexity on a picture description task, and a survey of practicing SLPs to determine how aphasia treatment software is selected.

Kate Schelkoph

The Effects of Supported Communication Intervention for Aphasia

Advisor: Nancy Paul

The purpose of this single-subject research study was to discover if a significant other demonstrated improvement in utilizing Supported Communication Intervention for Aphasia (SCI). An additional focus was the effects of this training on the interaction between an individual with aphasia and his communication partner. The couple was trained using the Supported Communication Intervention for Aphasia program (Alarcon & Rogers, 2007). Pre-test and post-test data was collected and compared. The researchers found the significant other showed improvement in eight of the nine areas of Supported Communication, especially in the areas of using augmentative and alternative communication and requesting clarification. The individual with aphasia remained inconsistent in his use of multiple modalities and there was a decrease in the units of information conveyed between the couple. This could be due to medical difficulties experienced by the individual with aphasia during the course of the study, which affected his communication skills. However, subjective observations and participant feedback suggested that SCI did improve overall communication between the couple. The training was easy to administer and the significant other made measureable gains during implementation of the techniques. However, because of decline in health, it was difficult to determine the response of the individual with aphasia to the intervention. The researchers would consider conducting further research on SCI for a different client who would have a more stable medical status. Further research might include individuals with differing types, severities and time post-onset of aphasia.

Kelsie Fahy

Factors Effecting Lifestyle Patterns, Family Dynamics and Communicative Interactions in Families Raising Children with Autism

Advisor: Kris Vossler

Speech-language pathologists (SLPs) are responsible for providing effective treatment to children with autism. SLPs not only have

the responsibility of providing treatment to the child with autism, but also for supporting the family members raising the child. In order to understand how SLPs can better serve these families, this qualitative study investigated the effects of raising a child with autism on lifestyle patterns, family dynamics and communicative interactions. Interviews of parents raising children with autism were utilized to fulfill this purpose. The information collected during the interview process answered the research question, "What factors influence and effect lifestyle patterns, family dynamics and communicative interactions when raising a child with autism?" The data analysis revealed three categories, ten codes, three themes and one final assertion. The participants identified factors affecting the family system as a whole, factors affecting individual relationships within the family, and factors external to the family relating to the inherent nature of autism.

Lora Rogness

Factors Affecting the Successful Implementation of an Electronic Scheduling System in a University Speech and Hearing Clinic Setting in the Midwest

Advisor: Richard Adler

The purpose of this study was to determine if Midwest university speech and hearing clinic directors are using electronic scheduling programs to schedule student clinicians, faculty supervisors and clients. The investigators surveyed clinic directors from the Midwest Clinic Director's list serve to determine what factors affect the successful implementation of an electronic scheduling system. Participants were asked if they currently use an electronic scheduling system. Current users were asked a set of questions about the clinic director's responsibilities, factors influencing the implementation of the electronic scheduling program, and recommendations for other clinic directors. Those who were not current users were asked a set of questions about the clinic director's responsibilities, reasons for not implementing an electronic scheduling system, and ways to assist in making a transition to an electronic scheduling system. The data collected will help university clinic directors understand the positive and negative factors involved in implementing an electronic scheduling system.

Valerie Glynn

Parameters Contributing to Identification of Voices as Male vs. Female

Advisor: Richard Adler

Perception of a voice as male or female may be an important aspect of speech therapy for individuals seeking voice therapy. The aim of this study was to explore the role of acoustic and perceptual measures in rating a voice as male or female on a spectrum. The following acoustic measurements will be collected: fundamental frequency, shimmer, relative average perturbation (jitter) and amplitude. A self-rating and a naïve listener rating will be completed to perceptually analyze each voice. A quantitative cross-sectional case series design will be used. Data was collected on acoustic parameters, naïve listeners' perceptions and self-perceptions. Twenty subjects, 10 male and 10 female, completed a self-rating form and participated in an acoustic evaluation. Twenty naïve listeners listened to a speech sample from each of the other 20 subjects and completed a rating for each voice. A Pearson correlation coefficient was completed to compare the relationship between how feminine or masculine a voice is rated and pitch and overall volume. The hypothesis for this study was that naïve listeners will identify a voice as male or female based on pitch and overall volume. The results supported that fundamental frequency is positively related to listeners' perceptions of voices as masculine-feminine.

Whitney Koehler, Graduate student

Evidence Base Practice of Assessment and Treatment of Traumatic Brain Injury

Advisor: Richard Adler

The purpose of this study was to determine the evidence base practice (EBP) for traumatic brain injury (TBI) patients. This study includes a detailed literature review to show the evidence base on the current practices of assessment and treatment of TBI. In addition, this study includes data collection from interviews of speech-language pathologists (SLP) that are currently practicing in a hospital or private practice setting in the Midwest region of the United States. Qualitative data was collected through an exhaustive literature review. The information from the literature review was organized into themes and presented in a narrative format. Then, qualitative data was gathered from interviews with the SLPs, this information was also presented in a narrative

format. The research articles in the literature review will be organized into EBP levels, according to the ASHA hierarchy of EBP. The assessment and treatment protocols used by SLPs will also be organized into EBP levels by using the ASHA hierarchy. After organizing the data into the EBP levels they will be compared. The comparison was completed to discover if the current practices being implemented by SLPs have EBP and if the evidence base is a high level, according to the ASHA hierarchy.

SUSTAINABILITY

Jordan Pinneke

Learning to Control Our Population: The Impact of Women's Education on the Future of Sustainability

Advisor: Stephen Lindaas

When thinking about the term sustainability, most people think only of related topics such as renewable energy or recycling. As important as these are to our ecosystem, the concept of an exponentially growing population and its effects on the environment is slowly becoming a more focused issue. More specifically, the high and fast-growing human population has been shown to have a correlation with the conditions of women in developing countries. Specific studies done in Tanzania, Kerala, India and Mexico are just a few in which the fertility and education of women have been distinctively linked. There are many cultural factors that impact fertility. My report focuses mainly on the socioeconomic factor of education on the number of people in certain countries. With a greater focus on developing the education and human rights of women, we will be better able to control the exponentially growing human population, therefore working toward a more sustainable world.



THEATRE ARTS

Maggie Olson

“Othello:” Cross-Disciplinary Teaching in English and Theatre

Advisor: David Wheeler

Both English students and theater students study Shakespeare, but the information is traditionally presented with different emphases. English studies focus primarily on literary analysis and historical context while theater studies focus primarily on character development and dramatic action. As someone who has studied in both disciplines, I sought to teach the play “Othello” to a group of theater students in a way that integrated all four of these areas by combining teaching strategies from English and theater. This presentation discusses the techniques and results of this teaching approach.

WOMEN’S STUDIES

Jessica Steinke

The Process of Hydraulic Fracturing and Our Water Supply

Advisor: Claudia Murphy

The process of hydraulic fracturing carries significant risk for the pollution of groundwater or aquifers in central western North Dakota. Hydraulic fracturing uses hundreds of chemicals and large volumes of water to fracture rock layers with low permeability so oil extraction can take place. This process has been widely used throughout the United States in recent years and has opened up oil deposits that were once unreachable before this technology. In 2004, the government signed a bill that exempts hydraulic fracturing companies from multiple acts, such as the Safe Drinking Water Act, Clean Water Act, Clean Air Act, so it appears that possible contamination was anticipated. The factors for possible contamination are accidental spills from faulty equipment, illegal dumping, runoff from waste pits, problems with Underground Injection Control wells, and the sheer volume of water needed for the fracturing process, which also relates to increases in the privatization of water. There are at least 30 known or possible human carcinogenic chemicals used in the fracturing fluids, which is why the contamination of the water supply could be so catastrophic. Water

pollution could prove devastating to residents and also to crop production, which is still the state’s leading money generator. What policies could ensure the safety of the water supply? Is more government regulation needed?

Kathryn Kottenbrock

Invisible Women and the Flood of 2009

Advisor: Claudia Murphy

My poster will focus on how the flood of 2009 affected homeless women in Moorhead, Minn. A survey will provide data from women about the challenges and successes they lived through during the flood. Since much current literature focuses on the plight of middle-class people, the data will provide information on a missed area of research in order to provide insight on work that needs to be done to protect vulnerable populations in the Red River Valley. Interviews will provide information about the role of shelters in creating a safe environment. The survey will also provide data concerning the plight of women living in conditions of poverty in natural disasters and contrasts to women who are homeowners. In the study, I hope to see if there are needs that should be filled, and if there is a policy that needs to be proposed.

Kelsey Fike, Grace Hannasch, Cally Gabbert, Hannah Pemelton

Is Human Breast Milk Safe?

Advisor: Claudia Murphy

We will be examining the hypothesis that human breast milk is being contaminated by toxins in the environment. There have been studies that show that man-made pollutants known as persistent organic pollutants (POP’S) can cause significant harm to the human body. These pollutants can enter human systems through air, water, soil and even the fish and other meat we ingest. Once in the system, pollutants attach to fat molecules, which are critical to the production of a nursing mother’s breast milk. Other problems associated with our bodies taking in pollutants are brain damage, abnormal hormone levels and birth defects. Our project will provide further research on the types and amounts of environmental toxins. We will also go in depth about different, unexpected populations with high levels of toxicity. We will provide research showing the demographics of different types of pollution and how it affects people in different areas of the world.

Korina Longsdorf, Marissa Schrader, Katie Gregoire, Jodie Seelye

Rachel Carson’s Ecofeminism

Advisor: Claudia Murphy

Ecofeminism is a political and intellectual movement that sees critical connections between the domination of nature and the exploitation of women. The two claims we will focus on include whether or not Rachel Carson was a true eco-feminist and how she influenced actual eco-feminism. We will evaluate her work to see if she is an eco-feminist. From there we will research towards proving that her work contained roots of eco-feminism. With all of our gathered information we hope to convey and spread the importance of eco-feminism on today’s society.

Kristen Toutges

Women and Water Wars

Advisor: Claudia Murphy

The effect of climate change and water wars on women is an urgent issue facing our world today. Women are at higher risk in general during times of natural disaster, and drought is no exception. In 2011, the Horn of Africa experienced a phase five famine. Severe food crisis and violent conflict in these regions caused multitudes of displaced people. Women in refugee camps are at high risk of rape and sexual assault. Women are sent to find water, walking through the desert for several days at a time, resulting in many deaths. Girls are forced to stop attending school when they begin menstruating, due to lack of running water. With women performing the vast majority of unpaid labor, little time is left for pursuing education or employment. This catastrophic issue stresses the importance of environmental defense, as well as the need for improvements in conscious farming and agriculture practices in less-developed countries. It also begs the questions: Why do we in the Western world rarely deal with these issues? What keeps us ignorant, and how can we as a world make positive changes beyond temporary aid?

Kyle Hanneman, Kiley Franzoni, Kali Arnzen, Jessica Selix

Flooding and Domestic Violence

Advisor: Claudia Murphy

We hypothesize that during times of flooding the amount of stress that people experience can lead to violence, particularly domestic violence. We are focusing mainly on flooding in areas of Fargo, Grand Forks and Minot. This hypothesis is consistent with the more general hypothesis

that increases in domestic violence are correlated with natural disasters. Our theory also includes that after these horrific circumstances beyond anyone's control the stress is still high, if not higher, during the time of recovery and repair. Throughout the project we will examine data from rape and abuse centers, police records, news reports etc. Our goal is to find out when flooding and other natural disasters occur does the amount of violence between loved ones rise.

Matthew Englund, Anna Knutson, Brittany Densmore, Zebulon Hallman, Eric Brown
What the Frack?

Advisor: Claudia Murphy

Our group was planning to look at both the positive and negative effects on our culture of what has happened and what could potentially happen due to fracture drilling. We plan to review how fracking could create more jobs within America, while potentially bring the nation closer to energy independence. We plan on reviewing how these trends could possibly be persecuting certain races or genders through a rise in criminal activity such as prostitution, or through land development and gentrification. Our main hopes are to explain the cultural developments since the start of fracking in western North Dakota, as well as the previous states, to determine the differences that have taken place.

Nicole Halverson, Lauren Starling, Tanika Essary, Taylor Miller

*Environmental Justice:
Global Warming Education*

Advisor: Claudia Murphy

There is no one left unaffected by the consequences of global warming. Through skewed misconceptions from media, outlandish research and scaremongering the general public is not knowledgeable about the accurate information regarding climate change. Environmental justice is not being implemented because of the lack of education about climate change. The general public is not as informed about the real ways to help reduce the human caused impact on the environment and global warming. Such misconceptions that are popularly believed are: 1. The climate is going through cycles of warming and cooling. Therefore, the warming of the earth is not caused by human activity. 2. The only greenhouse gas emitted by human activities is carbon dioxide from burning fossil fuels. 3. There is no scientific

consensus on the existence or causes of global climate change. 4. There is no use in trying to change the way I live. It will not do anything in the grand scheme of things. By providing knowledge and accurate information about these misconceptions the public can be provided with real ways to help alleviate the environmental impact of global warming. Education is the single most important factor in this situation.

Tiffany Zilka

Feminist Perspectives on the Flooding Red River of the North: Students and Flood of 2009

Advisor: Claudia Murphy

The effects of flooding can be disastrous. Families are forced to gather what few precious possessions they can and leave. Students are a source of free labor for flood-fighting efforts. A survey will provide information about the situations of college students during the flood of 2009. What are the consequences to students as a result of being asked for free labor? What is the impact on students after all the work is done? Where did students go when classes were still in session or cancelled, and some of their dorms and houses evacuated? What happened to students who live out of state, or to international students? When students have to leave their residences, they are put in new positions. Many became homeless. Students completed surveys to provide data about the situations in which they found themselves and the how they coped with the change. With the other material presented, this will bring a new local perspective to flooding and its effect on students.

Notes.....

