

SAC
2015



Tuesday, April 14, 2015

MINNESOTA STATE UNIVERSITY MOORHEAD PRESENTS

17th Annual Student Academic Conference

*Student-Centered Education through Mentoring
Student Research and Creative Activities*



Since 1999





Greetings:

At Minnesota State University Moorhead, our purpose is to transform the world by transforming lives. Few experiences are as life changing as the opportunity to engage in original research or creative activity and present the results to our academic community.

The projects being presented today represent countless hours of planning, problem solving, experimentation, investigation, innovation, and preparation. Behind every project there is not only a motivated student but also a dedicated faculty mentor. It is the mentoring relationship—whether in the laboratory, the field, the theatre, the studio, the computer lab, or the classroom—that makes these applied learning opportunities truly transformative.

A cursory review of the conference program reveals that our students are tackling problems such as cancer, diabetes, global warming, sustainability, racial and gender inequality, and child welfare. In short, the Student Academic Conference provides ample evidence that

Minnesota State University Moorhead is a place where faculty and students work together to address some of the most important problems we face. In doing so, you have also contributed to the spirit of discovery, creativity, and innovation at the University—a spirit that enriches us all and just might change our world.

Congratulations to all of the student presenters and best wishes for continued success.

Sincerely,

A handwritten signature in black ink that reads "Anne Blackhurst". The signature is written in a cursive style with a long horizontal flourish extending to the right.

Anne Blackhurst
President

Conference Schedule.....	4
Letter: Michelle Malott <i>Interim Provost and Vice President for Academic Affairs</i>	5
Keynote Speaker: Yahya Frederickson <i>“The Narrative Arc: A Writer’s Journey”</i>	6
Student Panelists:	
Bret Sheeley.....	7
Shelby Bachmeier; Kofi Boadu.....	8
Anthony Ring; Clarice Wallert.....	9
Student Profiles:	
Danielle Lean.....	10
Khulude Bukhari.....	11
Vinh Dao.....	12
Tania Arseculeratne.....	13
Stephanie Peterson.....	14
Sean Soehren.....	15
James Kawlewski & Marissa Reeves.....	16
Presentation Listings.....	18

Publication credits: Oscar Flores (*chair of the Student Academic Conference Committee*), Meghan Feir (*project coordinator, writer and editor*), Katie Faken (*designer*), David Arntson (*photographer*), MSUM Marketing intern Danielle Rebel (*writer*) and MSUM Marketing intern Brittany Dunnigan.



17th Annual Student Academic Conference

Tuesday, April 14, 2015

7:45 a.m. Poster Set-Up—Registration/Information Table
CMU Main Lounge

9:40 a.m. Presentation Session 1 and Poster Session 1
Various CMU Rooms and Poster Display Area

11:00 a.m. Seating for the Luncheon
CMU Ballroom

11:10 a.m. Luncheon Starts (Welcome and Introductions)
CMU Ballroom

11:50 p.m. Keynote Speaker—Yahya Fredirckson
CMU Ballroom

12:10 p.m. Student Panelists
CMU Ballroom

12:40 p.m. Presentation Session 2 and Poster Session 2
Various CMU Rooms and Poster Display Area

2:00 p.m. Break

2:10 p.m. Presentation Session 3 and Poster Session 3
Various CMU Rooms and Poster Display Area

7:30 p.m. THE [scream]
Gaede Stage

Dionysus. Agave. Pentheus. This trio collides in a power struggle that pits the divine against the damned, but which is which? This contemporary adaptation of Euripides' The Bacchae will incorporate live music, video, dance, and much more in this one-of-a-kind, visceral, theatrical experience.

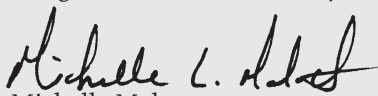
Conference Participants and Attendees:

For me, a highlight of the academic year is the Student Academic Conference. Each year I look forward to listening to students as they share their scholarly and creative achievements, and each year I am impressed by how dedicated, enthusiastic and talented MSUM students are. I look forward to this day because I know I'll be filled with Dragon Pride!

Recently, our campus community defined and approved a set of overall educational expectations that all MSUM students will have the opportunity to obtain, regardless of major, by the time they graduate. These expectations are listed below and I feel confident in saying that you won't have to look too hard to see all of these outcomes on display today, a result of the faculty and student collaborations that are the foundation of an MSUM student's academic success.

If you are a student, I congratulate you on your participation in the Student Academic Conference, and I commend your dedication and commitment to your scholarly work. You are the future, socially responsible leaders, entrepreneurs, writers, educators, artists, and scientists of our world. If you are a faculty or staff member who has mentored or supported a student participating in the Student Academic Conference, I know that student is appreciative of the dedication and commitment you have shown that student as they succeed at MSUM now, and beyond graduation.

Congratulations, and thank you.



Michelle Malott

Interim Provost and Vice President for Academic Affairs



University Wide MSUM Student Learning Outcomes

- 1 Demonstrate intellectual preparedness for success in professional life, bolstered by integrative experiences and technological competence.
- 2 Demonstrate effective written and oral communication, including use of appropriate technology.
- 3 Apply critical thinking skills in deliberative decision-making and problem solving.
- 4 Demonstrate civic awareness and responsibility, both locally and globally.
- 5 Negotiate ethical relationships with people who have different backgrounds, life experiences, cultures, beliefs, and values.
- 6 Demonstrate the knowledge, skills, and the self-awareness to sustain the life of ongoing, independent learning.



Yahya Frederickson



“The Narrative Arc: A Writer’s Journey”

As participants in this year’s Student Academic Conference, you are demonstrating commitment to and excellence in your studies, and many of you are presenting research that you’ve done in your chosen majors.

As a boy, I was sure that I wanted to work with animals. When I entered MSUM, my major was pre-veterinary medicine. However, what I found was that my liberal arts requirements and electives were usually more interesting to me than my major requirements. It took me three years to find creative writing. Although some people disparage the university as being an “ivory tower” and see the “real world” as being what hits you after college, I will quote the twentieth-century American poet Richard Hugo, who worked for the Boeing Corporation before becoming a professor. Hugo said: “Why is an aircraft factory more real than a university? [. . .] In some ways the university is a far more real world than business.”

Back in my day, the Student Academic Conference did not exist. While many things have changed, one thing that remains the same is professorial commitment. That advantage of increased attention that you are receiving here is not always found in other universities. So honor it!

I was able to put together an individualized major, which allowed me to complete my bachelor’s degree while remaining excited about learning in a variety of disciplines. I liked to think of myself as a “Renaissance man.”

In the eleventh century, in Europe, religious schools taught their students the *trivium* and the *quadrivium*—these seven subjects constituted the seven liberal arts (Piltz 15), a precursor to our own LASC. These schools eventually evolved into universities. Our LASC requirements echo this idea of well-roundedness.

“I encourage you to continue striving as you have been; continue being academic role models; continue moving along your own academic arc. Through your research and creativity, may you give the world more hope.”

Traveling has been an important part of my life as a writer. After completing my master’s degree, I joined the US Peace Corps as a volunteer. My time in Yemen provided the raw materials for my first full-length collection of poems, *The Gold Shop of Ba’Ali*.

According to Census Bureau figures from 2011, about 30 percent of people over age 25 in the United States held at least a bachelor’s degree, and about 11 percent held a graduate degree. As you consider your futures, keep in mind the big picture: that you are entering a cohort of the population—the 30 percent that hold at least a bachelor’s degree. And if you continue your studies beyond that, you will be in an even smaller cohort—the 11 percent holding master’s and doctorates.

I think our society, even our world, has a right to expect something from you. It’s a heavy burden on your shoulders. However, you are demonstrating your potential for excellence already by being here today. I encourage you to continue striving as you have been; continue being academic role models; continue moving along your own academic arc. Through your research and creativity, may you give the world more hope.



Student Panelists

Student Academic Conference 2015

Student panelists represent outstanding academic achievement and demonstrate a passion for learning in and out of the classroom. Each panelist will prepare a reaction to the keynote speech. Their responses will be delivered following the keynote speaker's address.



Bret Sheeley

*MSUM Graduate student
Major: Master's of Science in
Accounting & Finance*

I'm currently a student in the Master's of Science in Accounting & Finance program at MSUM and anticipate graduating this December. I graduated from MSUM last May with my Bachelor's degree in accounting. I'm originally from Wahpeton, N.D. and attended North Dakota State College of Science where I earned a Liberal Arts degree prior to attending MSUM. Since last June I've been working as a staff accountant at Kilbourne Group, a property development company located in downtown Fargo that focuses on revitalizing our downtown area. This has been a very rewarding experience, as it's allowed me to see all aspects of a business – from planning future projects to overseeing current fiscal operations. Prior to working at Kilbourne Group, I held internship positions in the financial operations department at Microsoft and audit department at Eide Bailly. When time allows, I enjoy volunteering in the local community. Last fall I helped organize an event called Alley Fair and served as its financial advisor. I had a great experience presenting at the Student Academic Conference last year and am looking forward to my involvement this year.



Shelby Bachmeier

MSUM Junior
Major: Elementary Inclusive Education

As a current elementary inclusive education major at MSUM, I am passionate about finding ways to serve each unique student. As part of my degree, I am pursuing an Academic and Behavior Strategist (ABS) licensure, which will give me the ability to work with a variety of students with mild disabilities. I am from Bismarck, N.D., and transferred to MSUM after completing my first year of college at the University of North Dakota in Grand Forks. This year I have been given the opportunity to conduct research on the most common challenges for beginning teachers, alongside my advisor and professor through my Honor's Apprentice Scholarship. This will be my first time participating in the Student Academic Conference, and I am excited to showcase the research I have been completing through a poster presentation and to be a part of this student panel. I thoroughly enjoy the education program at MSUM due to the various opportunities teacher candidates are given to apply new knowledge and work with cooperating teachers in practicum experiences. I look forward to gaining more experience in the teaching field while completing my remaining coursework and student teaching next spring.



Kofi Boadu

MSUM Senior
Major: Economics

As a senior economics major from Ghana, the complexity and inconsistencies of people and the world is my passion. Like many Africans, I have witnessed the hardships that persist as a result of subpar economic conditions. This urged me to challenge myself in and out of academia to help change this. At last year's Student Academic Conference, I had the opportunity to present my research on economic and social factors that increase wealth indicators of developing and developed countries. I am currently working with two professors to publish a version of my research in an undergraduate economic journal. Throughout my college career I have assumed several leadership roles including, serving as the current president of the Economic Society and as a small group leader with the campus Christian group, Chi Alpha. In these roles I have learned the significant impact a leader can have on the mindset and performance of a people or entity. After college, I intend to pursue a master's in either applied or behavioral economics. I hope to use the knowledge I have learned to assist in creating growth-inducing public policies and solutions to some of world's daunting economic problems.



Anthony Ring

MSUM Senior
Major: Animation

I am currently a senior at MSUM pursuing a degree in animation. As the animation degree is still relatively new, only being implemented last spring, I am honored to be one of the first few individuals to complete the program here at MSUM. I have always enjoyed watching animated films and shorts. What really drew me to them was the idea of creating a whole new world in which viewers can immerse themselves. I found the whole idea incredibly captivating. Presently, I am in the process of completing a short animated film as my capstone. The film, "Limbo," explores a man's journey through the afterlife, or more specifically the area between Heaven and Hell. In this area the man finds and accepts himself. I have learned much from the faculty here at MSUM, and appreciate the time I have spent here. I look forward to seeing where the road of life takes me after college.



Clarice Wallert

MSUM Senior
Major: Biochemistry and Biotechnology

I am a senior here at MSUM majoring in Biochemistry and Biotechnology. I grew up in Mountain Lake which is a small, farming community located in southwest Minnesota. One of my favorite hobbies was training and showing horses with my mom. Coming from a small town, it was a big adjustment beginning my undergraduate degree in the F-M area. As a freshman, I was given the opportunity to do non-small cell lung cancer research on campus and since have grown immensely in my love and knowledge for science. This year I will be presenting on NHE1 and CHP2 protein expression levels in non-small cell lung cancer. After I graduate, I will be attending Bemidji State University to pursue my master's degree in biology. I will then be attending osteopathic medical school to achieve my lifelong dream of becoming a physician.



Danielle Lean

Major: Anthropology

Year in School: Junior Hometown: Fargo, N.D.

'How Moorhead Got Its Start'



> By Danielle Rebel

When people began settling in Moorhead, it was a time of ball gowns and waistcoats. Traveling required a much greater effort than it does today. But the course of a century, a lot can change.

In the 1800s, traders in the area used oxcarts to travel and carry their wares. Later came steamboats, trains and automobiles. By the time the 1920s rolled around, Moorhead was looking much closer to what we know it as today — both in infrastructure and transportation methods.

Junior Danielle Lean, anthropology, is presenting at the Student Academic Conference April 14. Her presentation, titled, "Trails, Trains and Trolleys: How Moorhead Got Its Start," identifies the various means of transportation as each was introduced into early Moorhead, and how each affected the growth of the Minnesota community.

"There were the oxcarts that went through with trading, and then there was a little settlement in this area," Lean said. "Once trading began, Moorhead became a bigger place and then transportation elevated it to the next level. That's basically why Moorhead and Fargo are located right here."

She and her nine classmates in HIST 390, Interpreting History, will each be presenting on an early Moorhead-related topic, specifically looking at events during the 1880s-1920s. From women

in early Moorhead to immigration and prohibition, the class aims to educate their audience about why Moorhead is such a unique city.

Lean's presentation takes us back to a day when transportation meant more than miles per gallon or getting to work on time. Steamboats traveling along the Red River provided a connection with our neighbors to the north, while a single streetcar ran from Fargo to Moorhead, connecting the sister cities.

"I don't think many people know a lot on the early history of Moorhead," Lean said. "Hopefully the audience will learn something about why Moorhead is placed here and how it got started. Transportation kick started Moorhead, and Moorhead basically jumpstarted Fargo, too."

"I don't think many people know a lot on the early history of Moorhead. Transportation kick started Moorhead, and Moorhead basically jumpstarted Fargo, too."

– Danielle Lean

Khulude Bukhari

Major: Master of Science in Counseling & Student Affairs
Year in School: Graduate Student Hometown: Jeddah, Saudi Arabia

Gaining a global perspective



> By Brittany Dunnigan

Free time is a foreign concept to graduate student Khulude Bukhari. From her studies to her job and volunteer work at The Welcome Center and West Fargo Community High School, she is actively pursuing her dream of becoming a school counselor.

Pursuing a Master of Science in Counseling and Student Affairs, Bukhari has a passion for helping people, especially children and families. She also enjoys working with refugees. After moving from another country to the United States for school, Bukhari understands the challenge of adapting to a new culture.

Bukhari grew up in Jeddah, Saudi Arabia, where she completed her Bachelor's degree before enrolling in the MSUM graduate program and moving to the United States. Her mother is originally from Minnesota.

"Growing up, I have always been interested in different cultures, probably because I am from two very different cultures," Bukhari said. "I want to share my experience and passion for diverse cultures with others and help them be aware of things to consider when working with people from different countries."

Bukhari embraces this passion both inside and outside of the classroom. Upon first moving to Fargo in 2010, she began working at Charism, an afterschool program designed specifically for refugee and immigrant students. This experience, as well as her recent work as an intern for The Welcome Center and West Fargo Community

High School, inspired her to present at this year's Student Academic Conference on April 14.

Bukhari's presentation, "Assisting refugees with resettling in a new community," is a compilation of her research and personal experience intended to raise awareness and assist educators who are working with refugees. By helping educators become aware of the needs of refugee students and their families, she hopes they will be better able to help these individuals.

"The goal of the presentation is cultural competency," Bukhari said. "An understanding of the reasons why these refugee families are seeking refuge here, considering what they may have experienced and what they may have gone through."

Bukhari believes this topic is incredibly relevant because the refugee population in Fargo-Moorhead continues to increase at a rapid rate. She explained that there will be an increase in the number of refugees from Syria and the Democratic Republic of Congo in the community in the next couple of years. That is why she wants to help people understand these refugee families' needs and how to help them.

"The political conditions of the refugees fleeing to our area do not define their culture or who they are," Bukhari said. "I want to help people look past that and not judge them for it. These people fled their countries because of discrimination, so we need to help them as they search for happiness."

"The political conditions of the refugees fleeing to our area do not define their culture or who they are. I want to help people look past that and not judge them for it."

– Khulude Bukhari



Vinh Dao

Major: Economics

Year in School: Senior Hometown: Hanoi, Vietnam

Dietary Supplements and Socioeconomic Status



> By Danielle Rebel

Multivitamins. Meal replacement shakes. Whey protein. Creatine, calcium and vitamin C. All fall into the larger category of dietary supplements.

In his Student Academic Conference presentation, senior economics major Vinh Dao will discuss how various socioeconomic factors determine the amount of dietary supplements a person is likely to take on a daily basis.

“There are several factors that will impact dietary supplement intake for an individual,” Dao said. “This is not looking to stereotype; it is just a study to see how many milligrams of supplements (people) are going to take based on their demographics.”

Factors such as age, household income, gender and ethnic groups all played a part in Dao’s research. He said his findings are as expected.

“There are many factors that might change the behavior of taking supplements,” Dao said. “If you are older, you’re not going to be as strong as you were when you were young, right? So in order to improve your health when you get older, supplements might be a solution. You’d expect an older individual to have more dietary supplement intake than a younger individual.”

Dao was inspired to begin researching dietary supplements after recently getting involved in bodybuilding. His parents also take various dietary supplements in order to improve their health.

“By doing bodybuilding, I’ve met a lot of people who are into professional sports and bodybuilding,” Dao said. “The common thing is they all take some sort of dietary supplement. The top bodybuilders in the world all have some brand of supplements that they endorse.”

His research is unique. Though they have been popular in the U.S. since the late ’90s, not many have taken the time to study dietary supplements, especially the socioeconomic factors behind their use. Dao would have liked to include variables such as education and sports industry involvement, but research was unavailable to support his predictions. However, the data he did collect was exactly what he was looking for.

“The data table actually supported my predictions,” Dao said. “So far it’s a good sign for me, but I’m still working on the data.”

“The top bodybuilders in the world all have some brand of supplements that they endorse.”

– Vinh Dao

Tania Arseculeratne

Major: Music

Year in School: Senior Hometown: Negombo, Sri Lanka

Culture war: The need for younger audiences at classical music concerts



> By Meghan Feir

Over the years, as more musical genres have sprung up, concertgoers have been offered a rising selection of performances to attend. Unfortunately, classical music concerts have taken a hit because of the wide variety in music entertainment, along with a lack of musical knowledge and unawareness of concert etiquette. Senior music major Tania Arseculeratne is greatly aware of this well-documented problem and recognizes the need to attract younger audiences to classical music.

“We need to attract a younger audience for the existence of these concerts because the current audience is aging.”

– Tania Arseculeratne

“There are a lot of other genres and styles, and it’s more competitive. You don’t see a very young crowd,” Arseculeratne said. “We need to attract a younger audience for the existence of these concerts because the current audience is aging.”

As an MSUM orchestra member, music major and sociology minor, it’s easy for Arseculeratne to put herself in the shoes of concerned musicians. “I’ve read a lot of articles recently about declining audiences, and there has been some research done, as well.”

In Arseculeratne’s presentation, “Building Classical Music Concert Audience for the Future,” she will be

addressing the issue and presenting her own pool of research conducted among MSUM students.

In her study, she asked 10 music industry students their attitudes toward concert etiquette, along with their suggestions for the improvement of classical music events. She will be encouraging audience members to think critically about the reality of the future of classical music concerts.

“I will mainly be giving information I collected from my interviews,” Arseculeratne said. “Although I will make some suggestions based on the information I collected, I cannot say those suggestions will increase the number of audience members for sure. There needs to be a larger study to see what students are saying.”

Despite a diminishing audience, Arseculeratne has not noticed plummeting interest in students entering the field of music performance and orchestral participation.

“I don’t think there’s a decline in people joining orchestras. Even though the Minnesota Orchestra is struggling right now, most of them (orchestra members) have found jobs in other places.”

Arseculeratne’s research could lead to larger studies that could help classical music save its place in the large spectrum of entertainment options.

“The audience will get to see what other problems students see as obstacles preventing these students from coming to the concerts.”



Stephanie Peterson

Major: Master's in Speech Pathology

Year in School: Graduate Student Hometown: Harwood, N.D.

Continuing communication: The effects of Right Hemisphere Damage



> By Meghan Feir

For graduate student Stephanie Peterson, the research she will be presenting at this year's Student Academic Conference hits close to home. After watching her grandmother experience right hemisphere brain damage (RHD) after a stroke and watching a family friend receive speech therapy, Peterson became interested in speech-language-hearing sciences at a young age.

“Language is usually held in the left hemisphere of our brain, but this really shows that communication can still be impacted by different deficits from damage to the right hemisphere.”

– Stephanie Peterson

“I saw how speech pathologists worked and how speech therapy positively impacted individual's lives,” Peterson said.

Individuals with RHD can experience slurred speech and even swallowing issues, but this study will focus on other common symptoms. In Peterson's presentation, “A Qualitative Study: Experiences of Communication Partners of Persons with Right Hemisphere Brain Damage,”

she will bring attention to the effects of RHD and the impact it can have on the individual and those who communicate with them on a daily or weekly basis. She will specifically point out the reversal in roles that often occurs.

“My findings have shown a reversal role of the child and parent, which really hit me hard because the individual with the right hemisphere damage could be the parent and the children are now in the parental role,” Peterson said.

The difficulty and pressure of reversing responsibilities can take a major toll on relationships. Peterson wants to share strategies and tips that can help family members experiencing these situations, some of which include “Bringing up things that are of interest to them. They can be impulsive. They might not understand humor or sarcasm,” Peterson said. “Sometimes, they are very involved with themselves. Bring up things that help keep the relationship positive.”

Along with a few of her classmates, Peterson also presented at the 2014 American Speech-Language-Hearing Association (ASHA) Convention in Orlando last November and was able to visit with experts in the field.

“Further research needs to be done in this area. Peterson said, “But the difficult part is to reach these individuals because of those communication barriers. “Language is usually held in the left hemisphere of our brain, but this really shows that communication can still be impacted by different deficits from damage to the right hemisphere.”

Sean Soehren

Major: Master of Psychology

Year in School: Graduate Student Hometown: Dickinson, N.D.

Creating compliancy: Improving behavioral intervention in the classroom



> By Meghan Feir

School Psychology graduate student, Sean Soehren, entered the program knowing he wanted to help struggling students in the classroom, and through his research, he may be able to assist educators with new methods of growing classroom compliancy.

His presentation topic, “Increasing Compliance Using Mystery Motivator and Sure I Will Behavioral Interventions,” is based on the research he did on behavioral intervention for his thesis. Soehren worked with second graders with reading disabilities and extreme behavioral issues last spring to find a way to increase compliance for the benefit of the classroom.

“This was a very unique way to use these concepts,” Soehren said. “I took two interventions and combined them. This is something that’s useful for further research and classroom management.”

Results of Soehren’s study show definite improvement of classroom compliance during the intervention phase, with the average compliance increasing from 49 to 74 percent. Other negative behaviors also diminished.

“My presentation will have information on environmental satisfaction, so things that make for a good environment, classroom or otherwise,” Soehren said. “There will be information on specific disorders that are seen in classrooms, as well as some insight into how the research was put together, how the stats were run and the positive results acquired.”

Although this is Soehren’s first time doing such an in-depth research project, this will be his third time presenting the material. In February, Soehren also presented at the National Conference of School Psychology in Orlando, Fla., at Disneyworld.

“This is my first go at doing any type of research,” Soehren said. “There’s just a lot that goes into it, a lot of collaboration with other people. It was nice to have some guidance to overcome the challenges.”

Soehren worked closely with faculty in School Psychology and school counselors as he gathered information for the study.

“In my graduate studies, all the faculty has been exceptional – Lisa Stewart, Mary Dosch, Olivia Melroe, Peg Potter. It’s a small program, so you really get to know everybody,” Soehren said. “They each contribute useful things. They’ve all been an influence on me.”

I took two interventions and combined them. This is something that’s useful for further research and classroom management.”

– Sean Soehren



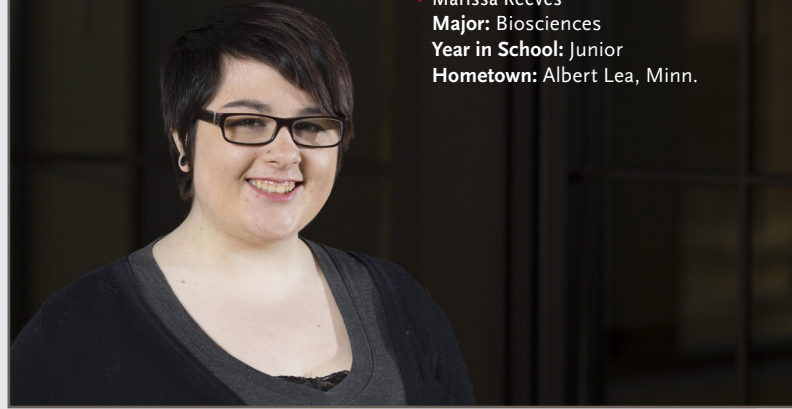
James Kawlewski & Marissa Reeves

Creating Buzz about Bees

> James Kawlewski
Major: Biosciences
Year in School: Senior
Hometown: Ottertail, Minn.



> Marissa Reeves
Major: Biosciences
Year in School: Junior
Hometown: Albert Lea, Minn.



>By Brittany Dunnigan

“We want people to understand that the different pollinators in our area affect people directly because if we lose pollinators, we lose the flowers, crops and everything we need to sustain life,”

– Marissa Reeves

When many people think of bees, honey is the first thing that comes to mind. These incredible little insects, however, play a much larger role in sustaining our ecosystem than simply supplying this sweet treat.

Senior James Kawlewski and junior Marissa Reeves, Biosciences students at MSUM, both agree that bees are essential to pollination and biodiversity. By working with MSUM Biosciences Professor Sarah Anderson, the students have conducted research to identify the number of different bee species that exist in Clay County to determine the level of biodiversity in the area.

This task is much more challenging than it may seem. The process of identifying different bee species is an elaborate procedure that takes extensive time and incredible patience. With nearly 30,000 different bee species in the world, incredible attention to detail is necessary.

“This research project has been going on for a couple of years because there was difficulty figuring out which procedures to use on the bees because few studies have been done on native bees in this area,” Reeves said. “The general process of identifying one single bee can take up to a few hours.”

Many species of bees are cryptic, meaning they look the same to the human eye upon appearance, when in reality they have a different genetic makeup. This was the challenge of this particular project, which is why the students used DNA barcoding to determine the different species.

The students joined this exciting research project as part of their molecular ecology class. This particular opportunity drew their attention because of its focus on biodiversity and unique subjects.

“I am very interested in biodiversity and love photography, so I photograph bees all the time and know how hard they are to identify,” Kawlewski said. “I wanted to learn more about them and this seemed like the perfect opportunity.”

Kawlewski and Reeves have different areas of expertise, which makes them a perfect team for the project. “Marissa knows more about the molecular and genetics side and I know more about the ecology side, so we work really well together,” Kawlewski said.

Kawlewski and Reeves will present their research at the Student Academic Conference. Their presentation will explain the process they used to collect the bees and analyze the results. They will also talk about the importance of pollinators such as bees to the ecosystem.

“We want people to understand that the different pollinators in our area affect people directly because if we lose pollinators, we lose the flowers, crops and everything we need to sustain life,” Reeves said. “That is why this type of research is so important.”

By meticulously executing their experiment and sharing their research findings, the students hope to make this process easier for others in the future.

Notes.....



ACCOUNTING

Nicole Weiss

The HealthSouth Scandal: A Fraud of Triangular Proportions

Advisor: Sheri Erickson

Lindsay Thompson

Investments Drowning in the Bayou

Advisor: Sheri Erickson

Rebecca Hoffman

Tyco International Fraud and Its Impact on the Fraud Triangle

Advisor: Sheri Erickson

Seyed Hamidreza Vakilzadeh

Fraud in the Neighborhood

Advisor: Sheri Erickson

Trent Wilson,

The Fraud Triangle and WorldCom

Advisor: Sheri Erickson

Hunter Thorsen

The Galleon Group; How Outcasts Became Insiders

Advisor: Sheri Erickson

Amanda Feils

The Fraud Triangle: The Demise of Lehman Brothers Holdings, Inc.

Advisor: Sheri Erickson

Brady Goeson

Krispy Kreme: Sweetened Results

Advisor: Sheri Erickson

ANTHROPOLOGY AND EARTH SCIENCE

Darcy Smith, Oleana Herron, Linnea

Dahlquist, Angella Voravong, Carra Strader

Complimentary, Necessary Parts of a Whole: The Gendered World of the Meshkwaki, 1640-2014

Advisor: Erik Gooding

Lee Smalt

Fargo-Moorhead Metro EDM Soundscape

Advisors: Erik Gooding, Lee Vigilant

Steven Mindermann

Live, Camera, Anthropology!

Advisor: Erik Gooding

Katelyn Dussik

The Anthropology of Equine Husbandry

Advisor: Bruce Roberts

Steven Mindermann

The Red River Valley: A Harsh Landscape

Advisor: Jayme Job

Jesus Romero Lopez

A City of Immigrants: Then and Now

Advisor: Jayme Job

Danielle Lean

Trails, Trains, and Trolleys: How Moorhead Got its Start

Advisor: Jayme Job

Emily Silverman

Gomorrhah of the North: Sin and Vice in Early Moorhead

Advisor: Jayme Job

Chelsey Quiring

Making a Living in 19th Century Moorhead

Advisor: Jayme Job

Carlie Peterson

Family Life and Leisure in Early Moorhead

Advisor: Jayme Job

Beatrice Franke

Victorian Style: Fashion and Architecture of Early Moorhead

Advisor: Jayme Job

Janna Gilbertson

Sustainability in a Developing World

Advisor: Bruce Roberts

ART AND DESIGN

Keather Lindman

The Importance of Visual Literacy in 21st Century Education

Advisor: Bradley Bachmeier

ATHLETICS

Tyler Hemmesch

Amyotrophic Lateral Sclerosis: A Literature Review

Advisors: Jay Albrecht, Dawn Hammerschmidt

BIOSCIENCES

Jaden Witt

Xenopus Embryo Development Upon Exposure to Downstream Water from an Effluent Plant

Advisors: Ellen Brisch, Shawn Garrett, Patricia Wisenden

Ashley Eder, Benjamin LeMay

Plant-fish interactions in an experimental aquaponics system

Advisor: Brian Wisenden

Elisabeth Teige, Angela Kooren

Urban Turkeys: Use of a Random, Stratified Survey of Homeowners in the Fargo (ND)-Moorhead (MN) Area to Estimate Turkey Distributions and Numbers, Human-Turkey Interactions, and Public Opinion on Turkeys

Advisor: Donna Stockrahm

Scott Buchholz, Blair Posusta

Variation in Turtle Capture Rates over Summer Months in Clay County, Minnesota

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Joshua Miller, Dana Reiner

Population Structure of Painted Turtles Captured at Different Traps within and between Three Sloughs in Clay County, Minnesota

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Ashley Eder, Nikholai O'Hara

Effects of Mown Paths on Small Mammal Movements in Clay County, Minnesota

Advisor: Donna Stockrahm

Gulnara Novbatova, Candida

Mamani Quispe

Gene expression analysis of the maize genes PDRP1 and PDRP2

Advisor: Chris Chastain

Chelsea Klemetson, Chandni Patel,

Trenda Schwantz

'Humanizing' Cadavers: Does it lessen the emotional impact of dissection?

Advisor: Patricia Wisenden

Shannon Smith, Sara Elgin, Scott

Buchholz, Chelsea Klemetson

Type II Diabetes and Age

Advisor: Patricia Wisenden

Calanthea Mazoyo, Emily Dilliard, Evan

Holt, Tatum Hall

The Influence of Ethnicity on Type II Diabetes

Advisor: Patricia Wisenden

Lauren Meeker, Kendra Harpstead, Eryn Anderson, Rachel Sannicandro
Aerobic and resistance training at moderate to high intensity and its effect on type II Diabetes
Advisor: Patricia Wisenden

Leah Miller, Cassandra Jensen, Jon Gilson
Class Data Examining Risk Factors for Type II Diabetes Mellitus
Advisor: Patricia Wisenden

Megan Palazzolo, Ashley Higgins, Jonathan Moll, Madison Kuznia
Fat Deposition in Relation to Type 2 Diabetes Mellitus
Advisor: Patricia Wisenden

Shara LaBelle, Patrick Msuya, Casey Materi
Does Smoking Increase the Chances of Type II Diabetes?
Advisor: Patricia Wisenden

Ross Rath, Sushmita Shrestha, Megan Johnson-Bacon, Jessica Radermacher
The Effects of Exercise on Preventing and Treatment of Type 2 Diabetes
Advisor: Patricia Wisenden

Casie Baer, Laura Hauff, Kristy Bruni, Kathryn West
Risk factors for 2-hour blood glucose tolerance test in a sample of Human Physiology undergraduate students
Advisor: Patricia Wisenden

Alyssa Anderson, Stefanie Akhidenor, Adefolarin Sijuwade, Sara Swanson
Regional Adipose Distribution and its Effects on Type 2 Diabetes
Advisor: Patricia Wisenden

Hajara Salisu, Gloria Divine, Blake Balzum, Robert Plemel
Smoking Cessation as an Intervention for Type 2 Diabetes
Advisor: Patricia Wisenden

Johanna Weber, Richard Eddleston, Brett Gehring, Cody Christ
Medical advice reported received may differ by race
Advisor: Patricia Wisenden

Jared Ching, Alissa Dahlin, Kayla Kenney
Age-Related Effects on Development of Diabetes Mellitus
Advisor: Patricia Wisenden

Sarah Cannedy, Jaden Witt, Kimberly Moe, Amber Krenske
Effects of Zebra Mussels on Benthic Invertebrates in Minnesota Lakes
Advisor: Patricia Wisenden

Robyn Aune, Jonathan Terning, Dana Reiner
Investigation of age as a risk factor for Type 2 Diabetes
Advisor: Patricia Wisenden

Anne Pius, Gayle Bowman, Dinara Bosch, Daniel Berdan
Class Data on Type 2 Diabetes
Advisor: Patricia Wisenden

Loida Guajardo, Elizabeth Dorff, Rachel Appert
Risk Factors, Probable Causes, and Prevention of Type 2 Diabetes in South Asian Populations
Advisor: Patricia Wisenden

Jordan Johnson
Examination of Varying Environments on Plants in an Aquaponics System
Advisors: Andrew Marry, Brian Wisenden

Ryan Van Hoecke, Nicholas Frolek, Marisa Yasuda, Chukwudi Obieri Ofoedu
Fat Deposition as a Risk Factor for Type II Diabetes
Advisor: Patricia Wisenden

MaKenzie Smith, Morgan Holm, Amanda Muller, Abby Van Meveren
Type II Diabetes Mellitus: The Indirect Role of Smoking and Diet
Advisor: Patricia Wisenden

Oluwatomilola Fatoba, Stephanie Nobei, Grishma Chapagain, Ruweyda Mohamed
Effects of exercise on type 2 Diabetes Mellitus
Advisor: Patricia Wisenden

Ashley Wood, Clarice Wallert, Eric Bares, Samuel Ameh
Multiple risk factor analysis for type 2 diabetes mellitus in Minnesota State University Moorhead students
Advisor: Patricia Wisenden

Samantha Sullivan, Stephanie Sarpong, Charles Tiedman, Jordan Pangerl
Impact of Smoking and Diet on the Risk of Developing Type II Diabetes
Advisor: Patricia Wisenden

Nancy Castro Borjas, Ayebabaraghoemi Daniels, Megan Adam, Gabriel Pankonin
The Role of Senescence in the Onset of Type II Diabetes
Advisor: Patricia Wisenden

Tia Halvorson, Amber Krenske, Christopher Kroeten, Megan Weiler
Fat Deposition in Type 2 Diabetes
Advisor: Patricia Wisenden

Hawau Abdulsalam, Trinh Pham, Alexander Kinsky, Tiffany Swanson
Effect of Exercise on Type 2 Diabetes
Advisor: Patricia Wisenden

Mary-Tiffany Oduah, Jamal Ibelhaj, Ashley Ramirez, Felicita Salazar Santiago
The Role of Ethnicity in Diabetes Risk
Advisor: Patricia Wisenden

James Kawlewski, Marissa Reeves
Elucidating local bee species diversity using DNA barcoding in Clay County
Advisor: Sara Anderson

Kari Mroska, Jessica Lindstrom
Painted turtle population genetics between sloughs in Clay County, MN
Advisor: Sara Anderson

Jacob Pithan, Jordan Johnson
Proteins Mealocortin 1 and Tyrosinase-Related 1 and their Effect on Coat Color in Dogs
Advisor: Sara Anderson

Philip Larson, Joshua Sundberg, Nathan Richgels
The impact of ecotourism on biodiversity in conservation areas
Advisor: Brian Wisenden

Ashley Eder, Benjamin LeMay
Plant-fish interactions in an experimental aquaponics system
Advisor: Brian Wisenden

Mollie Annen
Shorbird habitat suitability in Barrow, Alaska
Advisor: Daniel McEwen

Ashley Eder, Nikholai O'Hara, Angela Kooren, Scott Buchholz, Blair Posusta, Joshua Miller, Dana Reiner, Ryan Rothstein, Jonna Vachal, Jaime Kallstrom
Urban Canada Geese in Moorhead, Minnesota: Does Population Control Work?
Advisor: Donna Stockrahm



PRESENTATION LISTINGS

Alison Barkhymer

Measuring Cortisol Response to Alarm Cues in Zebrafish

Advisor: Shawn Garrett

Nancy Castro Borjas, Ruweyda Mohamed

*Acquired predator recognition by *C. elegans**

Advisors: Brian Wisenden, Ellen Brisch

Annika Bordak

Modeling monarch butterfly migrations and population changes

Advisor: Daniel McEwen

Kayla Smith

The Effect of Fair Trade Organizations and Coffee Farms in Costa Rica

Advisors: Brian Wisenden, Daniel McEwen

Molly Kraemer

Phenotypic plasticity in Nicaraguan convict cichlids

Advisor: Brian Wisenden

Jaden Witt, Tarin Terry, Alexa Byler

Banana Industry Impact on the Environment and Biodiversity

Advisors: Brian Wisenden, Daniel McEwen

Robyn Oster

Using stable isotopes to detect selective feeding behavior of predatory larval midges under different temperature regimes

Advisor: Daniel McEwen

Jaden Witt, Hermella Alemneh, Chase Esslinger, Lauren Meeker, Jessica Noreen, Meghan Roehrlich

Endocrine Disruptor Impacts on Axolotl Embryo Development

Advisors: Ellen Brisch, Shawn Garrett, Patricia Wisenden

Robyn Oster, Ashley Eder,**Janna Gilbertson**

Creating an artificial tide pool to engage students in marine experiences

Advisor: Daniel McEwen, Brian Wisenden

Berit Olson

Identification of Four Chironomidae Species By Morphometric Analyses

Advisor: Daniel McEwen

Jacob Pithan, Julia Goroski, Kayla Kenney

Tide Pool Macroinvertebrate Species Richness in Costa Rica

Advisors: Brian Wisenden, Daniel McEwen

Katelyn McMahan, Julia Goroski

Population Genetics of the Minnesota Painted Turtle

Advisor: Sara Anderson

Ryan Schmit, Kenneth Tollefson

Examining Aquaponic Components

Advisor: Andrew Marry

Evangeline Holley, Kayla Kenney

*The effects of cortisol on exploratory-boldness behavioral syndrome in zebrafish (*Danio rerio*)*

Advisor: Brian Wisenden

Ashley Eder, Nikolai O'Hara

Effects of Mown Paths on Small Mammal Movements in Clay County, Minnesota

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Urban Turkeys: Use of a Random, Stratified Survey of Homeowners in the Fargo (ND)-Moorhead (MN) Area to Estimate Turkey Distributions and Numbers, Human-Turkey Interactions, and Public Opinion on Turkeys

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Population Structure of Painted Turtles Captured at Different Traps within and between Three Sloughs in Clay County, Minnesota

Advisor: Donna Stockrahm

Trung To, Elizabeth Overbo,**Nicole Williams**

Sustainable practices as a Way of Life

Advisor: Daniel McEwen, Brian Wisenden

Evangeline Holley

Women in Early Moorhead

Advisor: Jayme Job

Chukwudi Obieri Ofoedu

Comparing the cell wall sugars of bean plants grown in two different areas

Advisor: Andrew Marry

Ashley Wood, Anne Pius

α 1-Adrenergic Receptor Induced Phosphorylation of the Na^+ - H^+ Exchanger Isoform 1 Regulates Cell Growth and Movement

Advisor: Mark Wallert

Katrina Mellegard, Casey Johnshoy

Development of Human Non-Small Cell Lung Cancer Cell Lines Expressing Calcineurin B Homologous Protein Binding Domain Mutants of the Human Na^+ - H^+ Exchanger Isoform 1

Advisor: Mark Wallert

Samuel Ameh, Vincent Anani

An evaluation of soil Nitrogen and Phosphorous toxicity: a metagenomic approach

Advisor: Sara Anderson

Meron Tadesse, Stephanie Nobei, Yewande Osunsanya

A test for Genes x Environment interactions on skeletal ossification in larval cichlids

Advisor: Brian Wisenden

Kaitlan Jensen

Synthesis of N-H Pyrazolidinone Rings and N-Benzyl Pyrazolidinones via alkyl halides

Advisor: Craig Jasperse

Stephanie Nobei, Yewande Osunsanya, Meron Tadesse

A test for Genes x Environment interactions on skeletal ossification in larval cichlids

Advisor: Brian Wisenden

Stephanie Nobei, Yewande Osunsanya, Elizabeth Jordan

Biodiversity in Costa Rica (Cabo Blanco)

Advisors: Brian Wisenden, Daniel McEwen

CHEMISTRY

Taysir Bader

Reaction of 1-{2-[diphenylboryl]benzyl}-2,2,6,6-tetramethylpiperidine with hydrogen

Advisor: Gary Edverson

Constance Anderson, Joseph Rumreich,

Developing a Method of Copper(II)

Oxidation Catalyst Synthesis

Advisor: Jeffrey Bodwin

Susan Bertrand, Corey Johnson, Conor O'Keefe

Synthesis and reactions of a tris-(tributylamine)triborate cation

Advisor: Gary Edverson

Hermella Alemneh, Jaden Witt, Sara Gebre, Chase Esslinger, Lauren Meeker, Jessica Noreen, Meghan Roehrlich

Methods of Detecting Endocrine Disrupting Chemicals (EDCs)

Advisors: Shawn Garrett, Ellen Brisch, Patricia Wisenden

Mikaela Hanson, Abel Tilahun, Joseph Clayton

What is the relationship of fish exploratory behavior and their stress hormone?

Advisors: Shawn Garrett, Brian Wisenden

Maria Pereira Marques Leal

Protocol optimization of N-benzyl 5-methyl and 5-methoxyphenyl pyrazolidinone from crotonic acid and methoxycinnamic acid

Advisor: Craig Jasperse

Whitney Swanson, Kristen Nordby

Lysophosphatidic Acid Signaling Stimulates Cell Growth and Migration through Na⁺-H⁺ Exchanger Isoform 1 Phosphorylation at Multiple Locations

Advisor: Mark Wallert

Clarice Wallert, Jillian Fox

Examining the Role of Calcineurin B Homologous Protein Isoform 2 in the progression of Non-Small Cell Lung Cancer

Advisor: Mark Wallert

Scott Buchholz, Shelby Sieverding

The Impact of Calcineurin B Homologous Protein Isoform 2 Expression on Non-small Cell Lung Cancer Cell Function under Hypoxic Conditions

Advisor: Mark Wallert

Eyakem Negussie, Mary-Tiffany Oduah, Mitchell Walker

Medical Genomics: An Insight to the Impact of DNA Sequencing in Medicine

Advisor: Chris Chastain

Frantz Joseph, Heather North, Janna Gilbertson

Skeletal ossification and swimming performances in Convict Cichlids

Advisor: Brian Wisenden

Anastasia Baumann-Vellenga, Savannah Rademacher, Trevor Harder, Emily Bushaw

How Old is Too Old? Prairie Seed Germination Experiments in Preparation for a Large Scale Prairie Restoration Project

Advisor: Alison Wallace

Hermella Alemneh, Dr. Ursula Bordewick-Dell, Tobias Fischer

Simple HPLC Method in the Detection of

Synephrine, Caffeine

Advisor: Shawn Garret

CINEMA ARTS AND DIGITAL TECHNOLOGIES

Anna Pavicic, Kevin Koshiol

PeraPera: A virtual Japanese adventure

Advisor: Alexandria Fogarty

COLLEGE OF BUSINESS AND INNOVATION

Shannon Deutsch

Fraud Triangle: Qwest Communications

Advisor: Sheri Erickson

COLLEGE OF HUMANITIES AND SOCIAL SCIENCES

Mira Nkulu Kadiele

Landlocked countries and their economic development

Advisor: Oscar Flores-Ibarra

Yuka Yamanouchi

The Immigration Policy in Japan

Advisor: Bruce Roberts

COLLEGE OF SCIENCE, HEALTH, AND THE ENVIRONMENT

Vincent Anani

Comparison of two metrics for biomarker assessment on simulated microbiome datasets

Advisors: Daniel McEwen, Vijay Antharam

COMPUTER SCIENCE AND INFORMATION SYSTEMS

Machunde Tandasi

Why Open Source Matters

Advisor: Andrew Chen

Brandon Carmichael

4-Player MAME Controller

Advisor: Andrew Chen

Alicia Taray

Moving Forward in the Field of Robotics: Bipedal Walking

Advisor: Andrew Chen

Mallory McConville

CityHop: Using Shortest-Path to Promote Exploration

Advisor: Andrew Chen

Jacob Moe, Joseph Benda

C# Web Choose-Your-Own-Adventure Game

Advisor: Andrew Chen

Stephen Garaas

Dragon Books: A website for MSUM students to buy and sell textbooks

Advisor: Andrew Chen

Jeffrey McNertney

E-Commerce Shopping Cart Android Application

Advisor: Andrew Chen

Derick Hermanson

Fargo-Moorhead Garage Sales Web Application

Advisor: Andrew Chen

Christian Ridlon

Game Development using Python

Advisor: Andrew Chen

Charles Flaten

Password Vault Application

Advisor: Andrew Chen

Nathan Richgels

Pirates in Minecraft: Making a Mod

Advisor: Andrew Chen

Daniel Stueve

An Introductory Analysis of How Computers Play Chess

Advisor: Andrew Chen

Aaron Quamme

"Make this!" An app for finding recipes that you can make with what you have on hand

Advisor: Andrew Chen

COUNSELING AND STUDENT AFFAIRS

Andrea Mann

Upperclassmen Integrated Learning Communities: A Plan for Student Success

Advisors: David Paul, Hannah Severson



PRESENTATION LISTINGS

Brittany Hanson

At-risk high school students: A comprehensive school counseling plan

Advisors: Lisa Karch, David Paul

Megan Hoyer

What about the Sixth Graders? Passing Along a School Counseling Program to Future Interns

Advisor: Lisa Karch

Kayla Armstrong

Connecting Student Athletes with Academic Support: A First Year Student Athlete Orientation Manual

Advisor: David Paul

Kari Swoboda

K-5th Grade Social Skills Curriculum Development

Advisors: Lisa Karch, David Paul, Mary Dosch

Katie Kelly

High School Leadership Curriculum

Advisor: Lisa Karch

Catherine Kippley

The Academic Assistant Program/Tutoring Program: A Manual for the Graduate Assistant

Advisor: David Paul

Khulude Bukhari

Assisting Refugees with Resettling in a New Community

Advisors: Lisa Karch, David Paul

Elizabeth Gaddie

An Intentional Integration of Academic Student Success and Campus Engagement: The First Year Experience Curriculum Guide

Advisor: David Paul

Lori Vigesaa

Counseling with Connection: Continuing Education Model for Working Collaboratively with American Sign Language Interpreters in the Mental Health Setting

Advisors: David Paul, Lisa Karch

Katherine Staszko

Adolescent Mental Illness Support Group Curriculum

Advisor: Lisa Karch

Melynda Heying

LGBTQ Affirmative Training (Safe Zone) for MSUM CNSA Students

Advisor: David Paul

Nancy Githii

Mental illness and International students-MSUM

Advisors: David Paul, Lisa Karch

ECONOMICS**Vinh Dao**

Do we need supplements to achieving a better physique and health condition?

Truths and Lies within the Bodybuilding and Health Supplements Industry

Advisors: Oscar Flores-Ibarra, Gregory Stutes

Iwnetim Abate

Effect of different Factors on the Number of Photovoltaics Installation in the US

Advisor: Oscar Flores-Ibarra

Prabal Dangol

Different genres of music, different paths of life

Advisor: Oscar Flores-Ibarra

Vinh Dao

Factors associate with dietary supplements intake

Advisor: Oscar Flores-Ibarra

Dylan Riley

Changes in Minnesota Golf Course Water Demand as a Result of a Summer Water Use Surcharge Increase

Advisor: Oscar Flores-Ibarra

Taylor Lehn

Women's labor force participation and the US economy

Advisor: Oscar Flores-Ibarra

Ryan Udelhoven

Differential Income Inequality

Advisor: Oscar Flores-Ibarra

Yongsoo Kim

Various Factors and Speculation Affecting New Condominium Price in Seoul, Korea

Advisor: Oscar Flores-Ibarra

Trey Kjono

East vs. West: An Economic Comparison of North Dakota Counties Pre and Post-Oil Boom

Advisor: Oscar Flores-Ibarra

Kevin Hoots

Golf Skills that Offer the Highest Payouts

Advisor: Oscar Flores-Ibarra

Ryan Udelhoven

Differences in Income Inequality across States

Advisor: Oscar Flores-Ibarra

EDUCATION**Shelby Bachmeier**

A Literature Review of the Most Commonly Identified Struggles of Beginning Teachers

Advisor: Keri DeSutter

Sara Bogardus

Equal Educational Opportunity Act and Latino/a Students: An overview of the law and the effects on Latino/a students

Advisor: Sheila Marquardt

Jamie Pettersen

Alternative Education: One Size Does Not Fit All

Advisor: David Tack

Leila Pritchett, Isaac Skalsky

An Analysis of the effects of Science Fair on Students

Advisor: Richard Lahti

Isaac Skalsky

The link between science fair participation and higher standardized test science scores, with strategies to increase alignment of science fair with Minnesota Standards.

Advisor: Richard Lahti

Mohan Shang, Brittney Gordon

Socioeconomic status and Achievement Gap

Advisor: Nancy Hafner

ELEMENTARY AND EARLY CHILDHOOD EDUCATION**Kaylee Simonton**

Educators and The McKinney Vento Act

Advisor: Sheila Marquardt

ENGLISH**Johannah Scheu**

Student Ratings of Female Professors with Foreign-Accented Speech at Minnesota State University Moorhead

Advisor: Elizabeth Kirchoff

FINANCE

Pengyu Qian

Country Risk and its Effects on Institutional Investment Fund Flows: Evidence from Mexico
Advisor: Eduardo Pablo

GEOLOGY/GEOGRAPHY

Nicholas Anderson, Christopher Benjamin, Alex Courneya, Matthew Hanna

Sequence stratigraphic analysis of the Tyler Formation (Morrowan; lower Pennsylvania) in western North Dakota
Advisor: Karl Leonard

Jackson Henrich

Incorporation of Minnesota's Decorah and Platteville Formations' Fossils into School Curriculum
Advisor: Karl Leonard

Lindsey Anderson, Elliot Young, Eric Schaeffbauer

Modeling NiO Activities in High Temperature Silicate Melts
Advisor: Russell Colson

John McMullen, Dominic Mugavero

Examination of Permian Fossil Assemblages of the Florena Shale of Central Kansas
Advisor: Karl Leonard

GRADUATE STUDIES

Kristen Boomer

A New Look At Early Numeracy: Read-Aloud Books with Mathematical Stories
Advisor: Lisa Stewart, Karl Leonard

Carrie Bertsch

Social Communication Deficits for Individuals with Traumatic Brain Injuries
Advisor: Nancy Paul

HEALTH AND PHYSICAL EDUCATION

Haley Ness

Epilepsy and Activity: A Literature Review
Advisors: Jay Albrecht, Dawn Hammerschmidt

Zachary Krippner

Tommy John Surgery: A Literature Review
Advisors: Jay Albrecht, Dawn Hammerschmidt

Sarah Drusch

Multiple Sclerosis: A Literature Review
Advisors: Jay Albrecht, Dawn Hammerschmidt

Bruce Mortenson

Diabetes and activity: A Literature Review
Advisors: Jay Albrecht, Dawn Hammerschmidt

Megan Martinez

Hypertrophic Cardiomyopathy: A Literature Review
Advisors: Jay Albrecht, Dawn Hammerschmidt

Alex Johnson

Slipped Capital Femoral Epiphysis: A Literature Review
Advisors: Jay Albrecht, Dawn Hammerschmidt

Magdalena Wieser

Eating Disorders in Athletes: A Literature Review
Advisors: Jay Albrecht, Dawn Hammerschmidt

Dana Bungert

Spondylolisthesis & Spondylolysis among young athletes: _xooB_A Literature Review
Advisors: Jay Albrecht, Dawn Hammerschmidt

HISTORY

Bethany Lahlum, Nehemiah Jensen, Meagan Wenstad, Marissa Johnson

The voting Rights Act: A Semicentennial Commemoration
Advisor: Paul Harris

Christine Manikowski, Matthew Condry, Nicole Teberg, Erick Toso, Hunter Johnson

The Thirteenth Amendment: A Sesquicentennial Commemoration
Advisor: Paul Harris

Kayla Spanier

Los Mayas: Una civilización perdida
Advisor: Nathan Clarke

Bailey Benson

Trade, Speculation, and Growth: The Earliest Settlers of Moorhead, Minnesota
Advisor: Jayme Job

Isaac Horn

Bringing Education to Moorhead
Advisor: Jayme Job

INTERNATIONAL BUSINESS

Chelsea Boatey

Chinese Investment in Africa
Advisor: Andrew Conteh

LANGUAGES AND CULTURES

Louisa Jastram,

Los cambios lingüísticos del español
Advisor: Nathan Clarke

MARKETING

Amina Budalica, Peyton Glodrey, Madeline Schultz

Golf Course Research Project
Advisor: Ruth Lumb

Ashley Galster, Jacob DeGeest

Cottonwood Golf Course Research Project
Advisor: Ruth Lumb

Anne Nelson, Chandler Boehm, Courtney Kosir, Taylor Ganser

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Advisor: Ruth Lumb

Emily Stengrim, Kaitlin VanWinkle, Kayle Schiele

Cottonwood Golf Course
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Anne Nelson, Kenneth Andri, Nathan Baker

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Emily Stengrim, Peyton Glodrey, Kayle Schiele

Cottonwood Golf Course
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Samantha Hohnstadt, Christina Pierce

Critical Incidents
Advisor: Ruth Lumb

Crystal Ballard

Cottonwood Golf Course
Advisor: Ruth Lumb

Brenda Abeltino

Cottonwood Golf Course
Advisor: Ruth Lumb

Hannah Lorentz

Cottonwood Golf Course
Advisor: Ruth Lumb



PRESENTATION LISTINGS

MASS COMMUNICATIONS

Drew Olmen, Megan McInroy, Nathan Mauland, Melanie Ljungren, Rachel Neumiller, Mario Tuccitto
NASC

Advisor: Jody Mattern

MATHEMATICS

Shrijana Gurung
Pythagorean Quadruples
Advisor: Damiano Fulghesu

Connor Stotts
Analysis of Rocket Flight Path
Advisor: Damiano Fulghesu

Samuel Erickson
An Examination of the Union-Closed Sets Conjecture
Advisor: Damiano Fulghesu

Pratik Dahal
The Isoperimetric Inequality
Advisor: Damiano Fulghesu

Ashley Borchardt, Erin Giosta
The Geometric Properties of Fractals
Advisor: Justin James

Jacob Moe, Zachary Page
The Moulton Plane
Advisor: Justin James

Kain Schow, Aaron Moser
Regular Polyhedra
Advisor: Justin James

Monica Maus, Joanna Rogness
Ruler and Compass Constructions
Advisor: Justin James

Wade Hukriede, Michael Coyle
Three-Dimensional Geometry
Advisor: Justin James

MUSIC

Tania Arseculeratne
Building Classical Music Concert Audience for Future
Advisor: Laurie Blunsom

PARALEGAL

Colin Helfenstein
Present-Day Imperialism
Advisor: Andrew Conteh

PHILOSOPHY

Marah Omar
What is Islam?
Advisor: Konrad Czyski

John Fitzer
Utilitarianism, Kant, and Ferguson, MO
Advisor: Laura Odum

Nicole Hunsicker
Anomalous Monism
Advisor: Chang-Seong Hong

PHYSICS/ASTRONOMY

Connor Stotts
NMR Heating Apparatus
Advisor: Ananda Shastri

Laura Herzog
EDGES: Deep Multi-Wavelength Photometry and Radial SED Analysis for NGC4707 and NGC5229
Advisor: Juan Cabanela

Beau Scheving, Beau Scheving
Remote Sensing Application to Improve Carbon Dioxide Measurements of Bakken Oil Flares
Advisor: Juan Cabanela

Nathan Heidt
Redetermining the Period of the Pulsating Variable Star EY UMA
Advisor: Matthew Craig

Andrew Larson
Determining the Diffusion Coefficients of Water through Different Media
Advisor: Ananda Shastri

Iwnetim Abate
Modeling GaAs Solar Cells: Python Code to solve 1-D semiconductor
Advisor: Matthew Craig

Abel Tilahun, Aschalew Chamiso
Photoelectric Effect
Advisors: Juan Cabanela, Linda Winkler

Benjamin LeMay
Using Arduinos in Theatre
Advisor: Stephen Lindaas

Loza Tadesse
Signal Enhancement in the Electrocardiogram of Zebra Fish, Danio rerio
Advisors: Ananda Shastri, Brian Wisenden

Loza Tadesse
Screening of Lithium Oxygen Cathode 3D Composite Nano-networks Enabled by M13 Phage Directed Synthesis
Advisor: Stephen Lindaas

Nicholas Johnson
e/m ratio
Advisors: Juan Cabanela, Linda Winkler

Abel Tilahun, Aschalew Chamiso
Atomic Force Microscopy
Advisor: Linda Winkler

POLITICAL SCIENCE

Kellie Hoverson
Austrofascism in the Early Twentieth Century
Advisor: Andrew Conteh

Anna Sylva
How do communicable diseases affect International migration?
Advisor: Andrew Conteh

Cody Meyer
Voter Efficacy in the Digital Age: Do Online Registration/Voting Platforms Raise Efficacy in Undergraduates?
Advisor: Paul Kramer

Jared Vavrosky
Whistle Blowers and the Espionage Act
Advisor: Barbara Headrick

Rheider McCormick
The Beauty of International Labor Migration
Advisor: Andrew Conteh

Nicole Hunsicker
Cybernetic Theory
Advisors: Philip Baumann, Philip Mouch

Rheanna Quam
The Global Climate Issue
Advisor: Andrew Conteh

Alex Prince
Media and politics
Advisor: Barbara Headrick

PSYCHOLOGY

Caroline Kinskey, Jeffrey Williams

Does Standing Up Affect the Strength of Attitude Conviction?

Advisor: Gary Nickell

Madhuri Tiwari, Katherine Johanson, Brittany Densmore

Competing Sound and Spelling Information Produce Memory Blocks in Auditory Word Fragment Completion

Advisor: Christine Malone

Eloise Warren

The Impact of Schemas on the Placement of Eyes while Drawing

Advisor: Magdalene Chalikia

Jesus Garcia Garcia, Brittany Densmore
Observations and Practical Applications of Google Glass in a College Setting

Advisors: Magdalene Chalikia, Elizabeth Nawrot

Bridget Hanson

Fuzzy-Trace Memory and Expertise: A Review

Advisor: Christine Malone

Rachel Tengwall, Katrina Cibuzar, Aubrey Borgen

The influence of learning style on intention to purchase a product

Advisor: Elizabeth Nawrot

Aubrey Borgen, Rachel Tengwall, Katrina Cibuzar

The influence of learning style preference on data comprehension: Verbalizers and visualizers

Advisor: Elizabeth Nawrot

Sean Soehren

Increasing Compliance Using Mystery Motivator and Sure I Will Behavioral Interventions

Advisors: Lisa Stewart, Olivia Melroe, Brian Smith

Shelby Folkers

Textbook Medium and Computer Attitudes Cognitive Performance of Students Assessed

Advisor: Rochelle Bergstrom

Alyssa McDonough

A Review of Zoo and Aquarium Education Program Accessibility for Students with Disabilities

Advisor: Lisa Stewart

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A Review of Zoo and Aquarium Education Program Accessibility for Students with Disabilities

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Leah Paczkowski

Can You Take the Heat?: Competitive-Driven Tasks and Their Effects on Anxiety and Performance

Advisor: Rochelle Bergstrom

SCHOOL OF BUSINESS

Erin Nyberg, Aaron Swenson, Lingfeng Lu
Golf Course Research Project

Advisor: Ruth Lumb

Sabrina Ann Tan, Wen Ee Ling, Munkh Ochir Purevdorj
Golf Course Research Project

Advisor: Ruth Lumb

Aaron Swenson, Lingfeng Lu, McCall Goehner, Shayden Akason
Golf Course Research Project

Advisor: Ruth Lumb

SCHOOL OF MEDIA, ARTS AND DESIGN

Samantha Szczesny

Beach Interactive: A Professional Website Experience

Advisor: Alexandria Fogarty

Casey Murdock

Teens and the American Dream: The Socio-economic Contexts of Teen Films

Advisor: Anthony Adah

Joseph Coot

Objects of Fascination: Negating Gender Non-conformism in American Teen Film

Advisor: Anthony Adah

Mindy Craft

The Media in Teen Films: A Comparative Study of U.S.A, France, and Russia

Advisor: Anthony Adah

SCHOOL OF TEACHING AND LEARNING

Claire Warner

An Autoethnographic Look at the Importance of Positive Teacher-Students Relationships

Advisor: David Tack

Michaela Kolness, Camille Lepp

Benefits of Early Intervention for Children Living in Poverty

Advisor: Camille Brandt

Michaela Kolness, Camille Lepp, Jody Larson

Service Learning: Art and ASD

Advisor: Camille Brandt

SCHOOL OF VISUAL ARTS

Jing Wang

Controversial Themes in Manga

Advisor: Anna Arnar

Brittany Anderson

Sculptures as Books

Advisor: Anna Arnar

Arthur Bowling

Origins of the Book of the Dead

Advisor: Anna Arnar

Jacinta Thieschafer

Burning Books

Advisor: Anna Arnar

SOCIOLOGY AND CRIMINAL JUSTICE

Jordan Friedrichs

A Sociological Study on Racia and Ethnic Minorities' Experiences with Law Enforcemnt

Advisor: Lee Vigilant

Leane Guerrero

Reentry and Recidivism: What Influence Does Outside Support or Lack Thereof, Have on a Person?

Advisor: Lee Vigilant

SPECIAL EDUCATION

Serianna Eggen, Matthew Backlund, Toni Schreiner

How to Teach Social Skills to Students with Autism Spectrum Disorders

Advisor: Keri DeSutter



SPEECH LANGUAGE HEARING SCIENCES

Priyanka Graten

Investigation of script training approach to aphasia treatment

Advisor: Nancy Paul

Jenna Lund

Selective Mutism in School Aged Children: Background Factors and Strategies for Assessment and Intervention

Advisor: Kris Vossler

Hannah Larson

Current Practice when Providing Swallowing Services in the School Setting

Advisor: Nancy Paul

Rebecca Ellingson

Visual Supports for Individuals with Autism Spectrum Disorder

Advisor: Kris Vossler

Jessica Regner

Medical-Based and School-Based Speech-Language Pathologists' Knowledge and Awareness of Assessing and Treating Individuals Following a Concussion or Mild Traumatic Brain Injury

Advisor: Richard Adler

Rebecca Gussiaas

SLP as Counselor: Involving the family during aphasia therapy

Advisor: Richard Adler

Stephanie Peterson

A Qualitative Study: Experiences of Communication Partners of Persons with Right Hemisphere Brain Damage

Advisor: Nancy Paul

Carly Haas

The Use of Animal-Assisted Therapy in Speech-Language Pathology

Advisor: Kris Vossler

Rachel Kubat

Using Social Stories, Video Modeling, and a Home Program to Increase the Functional and Meaningful Communicative Attempts for a Child with Autism

Advisor: Kris Vossler

Alysha Kastrup

Effects of Screen Media on Language Development: A Systematic Review

Advisor: Kris Vossler

Stephanie Redmond

A Comparison of Adult Closed Head Injuries Vs. Childhood Closed Head Injuries

Advisor: Richard Adler

Kayla Flach

Efficacy and use of Melodic Intonation Therapy in Patients with Broca's Aphasia

Advisor: Richard Adler

Christine Dotzenrod Childress

Treatment of Radiation Induced Dysphagia for Individuals with Head and Neck Cancer

Advisor: Richard Adler

Bethany Altstadt

A Systematic Review: Treatment Approaches for Broca's Aphasia

Advisor: Nancy Paul

Katlyn Kaiser

Quality of Life Measures for Dysphagia: A Systematic Review

Advisor: Nancy Paul

Hanna Hintermeister

An Evidence-Based Systematic Review of the Knowledge and Skills Needed by a Speech-Language Pathologist When Working with Adults with Traumatic Brain Injury

Advisor: Richard Adler

Traci Miller

The Impacts of Reading Aloud to a Child: Language Development and Emerging Literacy

Advisor: Richard Adler

Alyssa Juelke

Methods in Creating Social Interaction for Children with Autism

Advisor: Kris Vossler

Alexis Martinsen, Katie Stephenson

Assistive Technology Options for Adults with Hearing Loss

Advisor: Mary Drake

Kari Ellefson

Comparison of the Speech-Language Pathology Profession in High, Middle, and Low Income Countries

Advisor: Nancy Paul

Hugh Jones

Developing a Personal Theory of Counseling for the Speech-Language Pathologist

Advisor: Richard Adler

Whitney Moore

Infant/Toddler Sign Facilitating Oral Language Development

Advisor: Kris Vossler

Hannah Zimmerman

Comparison of The Evidence Base of Two Feeding Approaches with a Sensory Component

Advisor: Nancy Paul

STUDY ABROAD

Kaitlin Roehrich, Krista Tolstedt,

Billie Rae Henkemeyer, Aubrey Lotz

A Confluence of Quality: Academic, Cultural, and Personal Growth through Study Abroad

Advisor: Timothy Borchers

SUSTAINABILITY

Waylon Macek, Benjamin LeMay,

Katherine Sullivan

The Impact of Electric Vehicles

Advisor: Joseph Herbst

THEATRE ARTS

Maggie Olson

Gender Roles in "Romeo and Juliet"

Advisor: Rebecca Gardner

Notes.....

