



Student Academic Conference Abstract Books

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2017

## 19th Annual Andrew B. Conteh Student Academic Conference

Minnesota State University Moorhead

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SAC  
2017



*Tuesday, April 11, 2017*

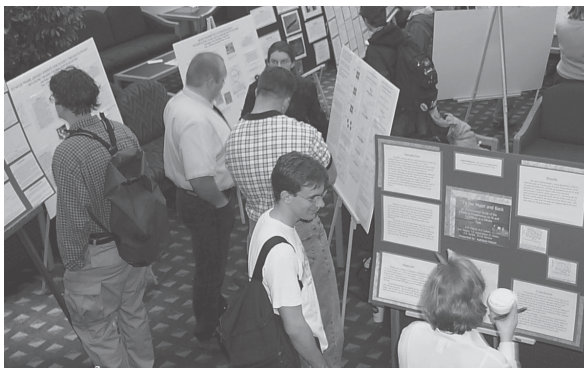
MINNESOTA STATE UNIVERSITY MOORHEAD PRESENTS

*19<sup>th</sup> Annual*

**ANDREW B. CONTEH**

# Student Academic Conference

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



*Since 1999*



MINNESOTA STATE UNIVERSITY  
MOORHEAD®



### Greetings:

Among all the programs and activities that make Minnesota State University Moorhead a place of transformation where students achieve more than they believed possible, the Student Academic Conference stands out as a particularly special and transformative experience. In many ways, the conference exemplifies the qualities that make MSUM truly unique: our legacy as a university where the faculty-student relationship is at the heart of teaching and learning; our commitment to providing students with opportunities to explore and discover their passions; and the transformation that occurs when students discover their reason for being and feel prepared to pursue their purpose.

It's no surprise, then, that the conference was started by a faculty member who also exemplifies these qualities and stands out as truly special. Dr. Andrew Conteh, beloved and respected by generations of MSUM students, started the conference in 1998 in collaboration with then-student Ryan Sylvester. In the years since then, the conference has become an annual tradition and source of pride for our campus community.

So, it is fitting that in the 19th year of the conference, as Dr. Conteh ends his distinguished career at MSUM, it has been officially named the **Andrew B. Conteh Student Academic Conference**. As we celebrate Dr. Conteh's career and mourn his departure, we commemorate his legacy by naming the conference in his honor. We also ensure that, annually, we will celebrate not only the spirit of exploration and discovery but also the lasting impact of Dr. Conteh's spirit on our campus community.

Congratulations to the students who are presenting at the 2017 conference. Thank you to the faculty mentors who worked side-by-side with those students to make their presentations possible. And thank you, Andrew, for devoting your career to MSUM and having the foresight to establish one of our most treasured traditions.


Sincerely,

Anne Blackhurst  
*President*

### Conference Participants and Attendees:

I am honored to congratulate this year's participants in the Student Academic Conference. This truly signature annual event at MSU Moorhead recognizes and celebrates students whose initiative, energy, hard work, and scholarship have earned them a place in this important annual exhibition. The Student Academic Conference is strong testimony to our students' leadership and their ability to master and use what they've learned, as well as to the excellence of the faculty who stand behind and support them. This event allows our students to participate in what, for many of them, will become a regular part of their own future careers: for those who continue on to graduate degrees, the work of the academician requires not only the ability to investigate, to analyze, to compare and contrast— but also to articulately distill their results and discoveries in order to contribute to a broader scholarly conversation, on the one hand, and that provide practical consequences for all our lives, on the other. For those who move on to non-academic careers, the ability to investigate, to acquire new information, to analyze and synthesize it, to present it, converse regarding it, and to apply it—all these skills are necessary for future success and are evidenced by the work of this year's student participants. These students' accomplishments are among the most powerful proof of the importance and effectiveness of what we do here at MSUM.

Those of you here in attendance are in for a treat! Your attention to, enthusiasm for, and support of this event and our students speak volumes about the value our community places on the great work of our students, and on the MSUM faculty and staff who serve as their mentors.



Joseph Bessie, Ph.D.  
*Provost and Senior Vice President for Academic Affairs*





# 19<sup>th</sup> Annual **ANDREW B. CONTEH** **Student Academic Conference**

Tuesday, April 11, 2017

<b>9:00 a.m.</b>	Poster Set-Up—Registration/Information Table <i>CMU Main Lounge</i>
<b>9:00 a.m.</b>	Featured Graduate Student Lecture <b>Tia Marthaler</b> <i>CMU 203</i>
<b>9:40 a.m.</b>	Presentation Session 1 and Poster Session 1 <i>Various CMU Rooms and Poster Display Area</i>
<b>11:00 a.m.</b>	Seating for the Luncheon <i>CMU Ballroom</i>
<b>11:10 a.m.</b>	Luncheon Starts <i>CMU Ballroom</i>
<b>11:50 a.m.</b>	Welcome, Introductions, Renaming of the Conference <b>Remarks by Dr. Shawn Garrett,</b> <b>Lt. Ryan Sylvester, JAGC, USN</b> <b>President Anne Blackhurst</b>
<b>12:40 p.m.</b>	Presentation Session 2 and Poster Session 2 <i>Various CMU Rooms and Poster Display Area</i>
<b>2:00 p.m.</b>	Break
<b>2:10 p.m.</b>	Presentation



### Ryan Sylvester

*1998 Mass Communications*

Ryan Sylvester was an involved student at MSUM, serving as a resident assistant, tour guide, student orientation counselor, student senator, Model United Nations participant and advertising manager for The Advocate. After finishing his degree, Sylvester stayed at MSUM as a full-time employee, working in Housing and Residential Life as an Area Director. In addition, he decided to continue his education at MSUM, obtaining a Master of Science in Educational Leadership in 2002.

He proposed the idea of a conference to one of his professors as a way to fulfill a practicum requirement for his graduate degree, and his professor was supportive. Sylvester then went to Dr. Andrew Conteh, who helped the idea come to fruition.

“The interdisciplinary nature of the conference provides a unique layer where student presenters have to be able to communicate their topic to an audience that may or may not have the contextual background that students of a particular major or course may have,” Sylvester explained. “The conference is a great day to celebrate student achievement and learning.”



### Shawn Garrett Ph.D.

*Chemistry and Biochemistry Professor*

Shawn Garrett, Ph.D., has been a faculty member in the Department of Chemistry and Biochemistry at MSUM for 26 years. She spoke at the first Student Academic Conference in 1999 where she discussed her experiences with biotechnology, biochemistry, and working on Project Kaleidoscope, an organization to reform science and math education. This year, she'll touch on not only conducting research, but also on having a supportive forum in which to communicate that research.

“This conference has given students practice in organizing research results and communication to an interested public,” said Garrett.

She notes because this is a smaller, more intimate conference, it allows for a more supportive forum. She says it also gives students valuable experience that translates to presenting at regional and national meetings associated with chemistry and biochemistry.



# Julianne Feir

Major: Art Education

Year in School: Senior

Hometown: Glenwood, Minn.

*STEAM Ahead: Art's integration for tomorrow's world changers*



> By Lexi Byler

**A**rt is known for being many children's favorite class, a staple in early childhood education. It develops children's creativity and is a way for them to express themselves. It has also been linked to improved academic performance. In contrast, science and technological innovation continues to expand. The importance of science, technology, engineering and mathematics (STEM) in the education system continues to prove true. Although the two subject areas differ, there is a way to combine them.

**“These skills (art) are critical for the advancement and betterment of the next generation.”**

– Julianne Feir

“America is in a creativity crisis,” said Art Education senior Julianne Feir.

She is looking at STEM in the education system at a different angle. Adding an “A” for art, STEAM focuses on the practical application of scientific principles coupled with artistic endeavors.

“These skills are critical for the advancement and betterment of the next generation,” said Feir.

Solving problems requires creativity. STEAM is an innovative way to teach traditional STEM subjects. It allows students to interpret information in a different way. The goal is for students to create, apply and incorporate art with STEM in their learning and work. Not all students are motivated by math and science. Integrating art into STEM may be the creativity needed to get students more engaged.

# Tyler Carlson

Major: Psychology

Year in School: Senior    Hometown: Rogers, Minn.

*What is beautiful is good: Implicit and explicit bias in restaurant hiring decisions*



> By Lexi Byler

**B**ias is embedded in human nature. Everyone has biases, regardless of whether they're implicit or explicit. The latter is beliefs or attitudes about a person or a group that an individual is aware of on a conscious level. Implicit bias is relatively the same, except the person is unaware of their bias. This type of bias refers to stereotypes that affect our thinking, understanding, actions and decisions in an unconscious matter.

Senior Psychology student Tyler Carlson chose this topic because of how complex the hiring process is – not only from a business and legal perspective, but from a psychological perspective as well. He conducted research on how facial attractiveness affects job candidates' chances of being hired, using a scale ranging from more attractive to moderately attractive and less attractive.

"I don't think a lot of people realize how much is actually taking place when we make hiring decisions," he said.

This is Carlson's second time presenting at the Student Academic Conference. Last year he presented on the stigmas of border bias. He finds value in showing his research and informing faculty and fellow students of the work he's done.

"The Student Academic Conference gives others and myself the chance to do something new and learn something new along the way, and that's what college and the conference are all about."

**"The Student Academic Conference gives others and myself the chance to do something new and learn something new along the way, and that's what college and the conference are all about."**

– Tyler Carlson





# Zillah Adahman & Oluwatosin Balogun

*Artificial Intelligence: Brain chips*

> Zillah Adahman  
Major: Computer Science  
Year in School: Senior  
Hometown: Abuja, Nigeria

> Oluwatosin Balogun  
Major: Computer Science and  
Computer Information Technology  
Year in School: Senior  
Hometown: Lagos, Nigeria



> By Lexi Byler

**A**rtificial intelligence and the idea of inserting microchips into human brains is the essence of futuristic inventions. Existing research on monkeys and rats shows these animals can control things with their minds as a result of implanted brain chips. We are that much closer to what was once deemed unfathomable. MSUM seniors Zillah Adahman and Oluwatosin Balogun were both fascinated by the potential of this type of technology and chose to delve into it further.

**“I’ve always been fascinated by the brain, and the ability to mimic the natural processes of the brain with a computer interests me.”**

– Oluwatosin Balogun

“I’ve always been fascinated by the brain, and the ability to mimic the natural processes of the brain with a computer interests me,” said Balogun.

Computer scientists are diligently working to perfect neural interfaces, aiming to improve life as we know it. It could lead to enhanced memory, empowering the ability to communicate with others invisibly and allowing someone who suffers from paralysis to regain the ability to feel and touch. The duo not only looked into the benefits but also the challenges of producing technology that has the potential to be life-altering. There are manufacturing and safety issues, as well as psychological concerns about how drastically this could impact human lives.

“This research is still an ongoing development. Not many trials or experiments have been done on the human brain,” said Adahman.

**“This research is still an ongoing development. Not many trials or experiments have been done on the human brain.”**

– Zillah Adahman

# Kaele Peterson

Major: Music Education

Year in School: Junior    Hometown: Fergus Falls, Minn.

*Music and classroom behavior*



> By Lexi Byler

**M**usic is a powerful medium that touches the hearts of people across the globe. The rhythm of a beat, the meaning behind lyrics and the joy of combining sounds to create something audibly beautiful are a few reasons why music is so many people's best friend. It accompanies us in our happiest moments, interrupts awkward silences on elevators and is the favorite part of many children's school days.

Music is capable of having a powerful hold on people. Typically taught in a manner in which students learn about music, MSUM junior Kaele Peterson is taking a different approach. The notion of utilizing music in general education classrooms as a tool for management is a revolutionary idea.

"The use of music in the classroom, no matter the classroom, really appealed to me," said Peterson.

She developed the idea after taking Social Foundations of Education and put it to practice

in the classroom she helped teach in for practicum. There, she worked with students with behavioral issues and saw how it affected their classroom behavior. Music can also be useful in special education.

"The positive effects of music extend beyond the classroom. Any teacher can use music to benefit their classroom and affect positive behavior changes."

**"The positive effects of music extend beyond the classroom. Any teacher can use music to benefit their classroom and affect positive behavior changes."**

– Kaele Peterson



# Abel Pavivic

Major: Computer Science

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

*Speaking in code*



> By Lexi Byler

**R**obots, flying cars and self-lacing tennis shoes are all futuristic inventions we thought we'd be enjoying by now. While we're still stuck in traffic on our way to school or work rather than soaring in the sky in this year's newest vehicles, scientific innovation continues to increase at a rapid pace.

Most people who own a smartphone are guilty of having conversations with them. Not texting conversations, but vocal conversations. These people speak into their mobile devices and expect an answer back from identities like Siri or Cortana; just two examples of many.

**“Modern technology offers a lot of freedom in terms of how easily you can interact with the digital personality and receive help with daily tasks.”**

– Abel Pavivic

“Modern technology offers a lot of freedom in terms of how easily you can interact with the digital personality and receive help with daily tasks,” said Pavivic.

Pavivic's research is about the level of interaction between humans and devices and explores how that connection can be deepened. Today's devices are equipped to respond to vocal cues. Over time, Pavivic believes these spoken prompts will gain clarity, to the point where the user will be convinced the computer understands them.

“I like understanding how computers think and how they prioritize requests. For a long time, computers were silent and could only offer beeps, but now it's less intimidating to accomplish things with their powerful capabilities,” he said.

# Matthew Dakken

Major: Economics

Year in School: Junior

Hometown: Fargo, N.D.

## *An Analysis of the Stock Recommendations of Jim Cramer*



> By Lexi Byler

**M**ad Money” is an American finance TV show that has aired for twelve years. Hosted by best-selling author Jim Cramer, the show focuses on investment and speculation in publicly traded stocks. Economics junior Matthew Dakken chose to analyze Cramer’s recommendations after searching for a more fun and engaging way to present information on consumer preferences than the traditional approach used in textbooks.

**“Historically, the field of economics has not played well with other social sciences and has been reluctant to acknowledge their value.”**

– Matthew Dakken

“Historically, the field of economics has not played well with other social sciences and has been reluctant to acknowledge their value,” said Dakken.

In his research, Dakken analyzes the market reaction to long-term returns of stocks “buy” recommended by Cramer, believing the TV personality’s charismatic nature makes his presentation both unique and more enjoyable to absorb. He focuses specifically on the first half of 2016, attempting to discover whether or not Cramer’s ability to outperform the market over the long-term is negligible.

Dakken is interested in exploring the combination of disciplines outside of economics and finance, like psychology and sociology. Looking at things through this interdisciplinary lens can be beneficial when researching economics and calculating finance.



# PRESENTATION LISTINGS

## ANTHROPOLOGY AND EARTH SCIENCE

*The Development of the Landscape at the MSUM Regional Science Center and its Influence on the Occupation of Indigenous Peoples: Interpreted from Lake Agassiz Shoreline and Recent Deposits*  
**Dominic Mugavero, Hanah Cook, Aishat Olowoshile, and Tyler Solberg**  
 Advisor: Karl Leonard

*Understanding the Meskwaki and Thaaki Worlds: Language, Environment, and Geography*  
**Melissa Foley**  
 Advisor: Erik Gooding

*Magnetic Susceptibility Data from Chief Looking's Village*  
**Carly DeSanto and Amy Woodruff**  
 Advisor: Rinita Dalan

## BIOSCIENCES

*Prairie Grassland Microbial Soil Diversity*  
**Ashley Higgins**  
 Advisor: Sara Anderson

*Area Patterning: Emx1/Emx2 Double Knockout*  
**Ifeoluwa Obanla, Jacob Rositas, Milka Rahman, Stacy Osei, and Eberardo Barragan**  
 Advisor: Adam Stocker

*The Effect of Emx2 Deletion in Area Patterning using FoxG1-IRES-Cre Technology*  
**Oluwatobi Shittu, Jossette Velazquez, Sanekazu Watanabe, and Mia Steffenson**  
 Advisor: Adam Stocker

*Optimization of Experimental Research Methods Involving in Vitro and in Vivo Models of Candida Albicans*  
**Milka Rahman, Mandi Markwardt, and Nicholas Miller**  
 Advisor: Sumali Pandey

*Phenylketonuria*  
**Daniel Skoglund and Calanthea Mazoyo**  
 Advisor: Shawn Garrett

*Tracking Anxiogenic Effects of Chronic Sleep Deprivation in Zebrafish*  
**Alison Barkhymer**  
 Advisor: Brian Wisenden and Shawn Garrett

*Effect of Deoxynivalenol Exposure on IL-6 Production in Human Pulmonary Epithelial Cells*  
**Yewande Osunsanya, Fanta Barrow, and Tori Edwards**  
 Advisor: Sumali Pandey

*The Role of Estuary Grasses in the Absorption of Nutrients*  
**Philip Larson and Laura Wessberg**  
 Advisor: Brian Wisenden

*The Biological Effect of Estrogen on Aquatic Vertebrates*  
**Katherine Budke, Akira Shastri, Randi Lenius, Tana Kurtti, Nicole O'Neill, and Nehikhare Ekhatore**  
 Advisor: Patricia Wisenden, Ellen Brisch

*Maternal Effects on Offspring as a Result of Environmental Visual and Chemical Predator Cues Presented at Various Life Stages*  
**Jacob Tesch and Alexandra Macgregor**  
 Advisor: Adam Stocker

*Biofilm Production in Cold Temperatures by Psychrophilic Bacteria*  
**Kendra Brand, Ashley Rezachek, and Jesse Nelson**  
 Advisor: Michelle Tigges

*Understanding the Effect of Salt on Transmembrane Protein Expression in Antarctic Bacteria*  
**Victoria Gilbert, Nellie Campbell and Charles Bergman**  
 Advisor: Michelle Tigges

*Preliminary assessment of taxonomic and functional diversity of bacteria across a prairie quality gradient*  
**Elias Holte and Kristen Anderson**  
 Advisor: Sara Anderson

*MSUM Nutrient Network*  
**Matthew Geister-Jones**  
 Advisor: Alison Wallace

*7E Science Lesson on Speciation*  
**Christina Aigner**  
 Advisor: Richard Lahti

*Effect of Intranasal Administration of Deoxynivalenol on IgA Production in Mice*  
**Blessing Nwakanma**  
 Advisor: Sumali Pandey

*The Role of Gut Microbiota on the Progression of Parkinson's Disease*  
**Jenna Wegscheid and Whitney Welder**  
 Advisor: Adam Stocker

*The Role of Obesity and Type 2 Diabetes in the Pathogenesis of Pancreatic Cancer*  
**Whitney Welder, Jenna Wegscheid, MaKenzie Smith, and Kathryn Sistrunk**  
 Advisor: Adam Stocker

*Comparison of Small-Scale Movements of Western Painted Turtles (Chrysemys Picta Bellii) Between the Sexes in Summer 2014 (a low-capture year) in Clay County, Minnesota*  
**Iveta Harner and Breanna Huynh**  
 Advisor: Donna Stockrahm

*Methods of Non-invasive Heart-Rate Monitoring of Zebra Fish*  
**Brittney Kakac and Mark Lueders**  
 Advisor: Andanda Shastri and Brian Wisenden

*The role of branched alpha keto acid dehydrogenase complex in Maple Syrup Urine Disease*  
**Hawau Abdulsalam, Erhiga Ekhama, and Ross Rath**  
 Advisor: Shawn Garrett

*Biochemical analysis of the glucose-6-phosphatase deficiency for those with Von Gierke's Disease*  
**Yewande Osunsanya, Jesse Nelson, and Charles Bergman**  
 Advisor: Shawn Garrett

*Turtle Tales: Where Do Local Painted Turtles (Chrysemys Picta Bellii) Fit Among the Species' North American Range?*  
**Jordan White and Joseph Cleys**  
 Advisor: Sara Anderson

*Grassland ecology investigations of baseline monitoring data*

**Hayley Hilfer, Stefanie Akhidenor, and Jade Schanz**

Advisor: Alison Wallace

*Using GIS and Trapping Records to Quantify Small-scale Movements in Western Painted Turtles (*Chrysemys Picta Bellii*) in Clay County, Minnesota*

**Sarah Sanderson and Miranda Sater**

Advisor: Donna Stockrahm

*7E Lesson Plan – Extend*

**Michael Colenso**

Advisor: Richard Lahti

*Do Genetic Changes in the Neocortex have Anatomical and Behavioral Repercussions in Mice?*

**Nancy Castro Borjas, Andrew Swedzinski, Alexandra Macgregor, Stefanie Akhidenor, and Katelyn Hixson**

Advisor: Adam Stocker

*Halting Parkinson's Disease Progression through Healing Intestinal Permeability and Gut Microbial Imbalance Via Diet*

**Kiana Ruch, Rachel Krause, Nicole O'Neill, and Shakiba Hajipouri**

Advisor: Adam Stocker

*7E Inquiry Lesson on the Cell Cycle*

**Trevor Harder**

Advisor: Richard Lahti

*7E Lesson Plan on Osmosis*

**Brooke Mayer**

Advisor: Richard Lahti

*Cortisol-dependent learning in zebrafish*

**Loretta Gyau, Mikaela Hanson, and Yewande Osunsanya**

Advisor: Brian Wisenden and Shawn Garrett

*Game Camera Study at the Minnesota State University Moorhead Regional Science Center near Glyndon, Minnesota*

**Eberardo Barragan, Angela Kooren**

Advisor: Donna Stockrahm

*Comparison of Small-Scale Movements of Western Painted Turtles (*Chrysemys Picta Bellii*) Between the Sexes in Summer 2016 in Clay County, Minnesota*

**Brittney Bruns**

Advisor: Donna Stockrahm

*Morphometric Variation in Western Painted Turtles (*Chrysemys picta belli*) in Clay County, Minnesota*

**John Reynolds**

Advisor: Donna Stockrahm

*Tree Squirrel Habitat Use in an Urban Campus Setting*

**Jessica Lindstrom and Jonna Vachal**

Advisor: Donna Stockrahm

*Urban Canada geese at American Crystal Sugar in Moorhead, Minnesota: Goose Numbers Are Down and Duck Numbers Are Up*

**Jaime Kallstrom and Rachel Rusten**

Advisor: Donna Stockrahm

*Comparison of Sex Ratios of Western Painted Turtles (*Chrysemys Picta Bellii*) Based on Long-Term Capture Records Versus Sex Ratios Calculated from Single-Season Capture Records in Clay County, Minnesota*

**Jessica Loeffler**

Advisor: Donna Stockrahm

*Impacts of Early Restoration Processes on Small Mammals in a Western Tall Grass Prairie in Clay County, Minnesota*

**Elisabeth Teige, Sarah Sanderson, Jessica Loeffler, Miranda Sater, and Jessica Lindstrom**

Advisor: Donna Stockrahm

*Writing to Learn Activities to Support Argumentation Skills in Biology Students*

**Brooke Meyer, Gregory Anderson, and Daniel Grande**

Advisor: Alison Wallace

*An Investigation of the Bio-chemical Constituents and Potential Allelopathic and Insecticidal Efficacy of Wormwood (*Artemisia Absinthium*) in Aquaponics*

**Isaac Heiser**

Advisor: Andrew Marry, Brian Wisenden, and Chris Chastain

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## BUSINESS

*The Enron Fraud Triangle*

**Pierre Djonou**

Advisor: Sheri Erickson

*Microsoft and LinkedIn*

**Rebecca Shoup**

Advisor: Mohamed Elbannan

*REIT Accounting Fraud*

**Devon Liljenquist**

Advisor: Mohamed Elbannan

*The Fargo Marathon and How It Benefits the F/M Community*

**Olivia Droogsma**

Advisor: Jane Pettinger

*New York Islanders: At a Discount*

**David Bush**

Advisor: Sheri Erickson

*An Analysis of Fraud*

**Tralonie Perkins**

Advisor: Sheri Erickson

*Tyco Scandal 2002*

**Mariah Hennen**

Advisor: Mohamed Elbannan

*ExxonMobil Merger*

**Dennis Skillings**

Advisor: Mohamed Elbannan

*A Study of the Fraud Triangle*

**Sandra Martin**

Advisor: Sheri Erickson

*Purchase Intention of Online Games: A Relationship between Consumer Personalities and Game Characteristics*

**Doner Ralph Manlangit**

Advisor: Wooyang Kim

*International Financial Reporting Standards (IFRS) and the Effects of the IFRS Adoption*

**Azbayar Enkhbayar** Advisor: Mohamed Elbannan



## PRESENTATION LISTINGS

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*The Nethnographic Nature of eSports Fans in Diffusing Online Game Engagement*

**Brandon Qual**

Advisor: Wooyang Kim

*The Perceived Value of Information Acquisition in the Choice of a Healthcare Organization: An Application of Foraging Theory*

**Morgan Shelton**

Advisor: Wooyang Kim

*Save The CPAs*

**Tina Schmitz**

Advisor: Mohamed Elbannan

*Consolidation @ Enron*

**Joseph Mathes**

Advisor: Mohamed Elbannan

*Hollywood Accounting*

**Laura Benson and Sonya Hicks**

Advisor: Mohamed Elbannan

*QWEST Scandal*

**Mona Barthouma**

Advisor: Sheri Erickson

*The Effects of PCAOB Regulations on the Audit Profession*

**Nicole Weiss**

Advisor: Mohamed Elbannan

*The Fraud Triangle @ Tyco*

**Jordan Heinen**

Advisor: Sheri Erickson

*Tax Planning*

**Tenzin Sherpa**

Advisor: Mohamed Elbannan

*Audit Fraud Case*

**Pierre Djonou**

Advisor: Sheri Erickson

*What does the Bible Say about Accounting?*

**Michael Korf**

Advisor: Mohamed Elbannan

*Financial Literacy, Family Communication, and Privacy Management*

**Peter Olson**

Advisor: Thomas Hanson

*Does Higher Gender Diversity in Corporate Boards Increase Financial Performance?*

**Qin Chen and Wen Zheng**

Advisor: Eduardo Pablo

*Portfolio Investment, Behavioral Biases, and Financial Literacy*

**Jenna Kalthoff** Advisor: Thomas Hanson

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## CHEMISTRY

*Improving the Drug Antipyrine: Synthesis of N1-Acyl Pyrazolidinone Analogs*

**Valerie Mores**

Advisor: Craig Jasperse

*Improving the Drug Antipyrine: Synthesis of N1-Acyl Analogs*

**Andrea Reynolds**

Advisor: Craig Jasperse

*Improving the Drug Antipyrine: Synthesis of C5-Dimethyl Pyrazolidinone Analogs*

**Joshua Agunsoye**

Advisor: Craig Jasperse

*Molecular Tweezers for Catalytic Hydrogenation and Dehydrogenation*

**Brooklynn Haslop and Taysir Bader**

Advisor: Gary Edverson

*Synthetic Methodologies for Pyrazolones Analogues as Potential Drug Candidates for Pulmonary Fibrosis*

**Taysir Bader**

Advisor: Craig Jasperse

*Improving the Drug Antipyrine: Synthesis of N1-Acyl Analogs*

**Erhiga Ekhama**

Advisor: Craig Jasperse

*Effect of Environmental Stresses on the Pigmentation of Antarctic Bacteria*

**Amanda Kemper, Sanekazu Watanabe, Sonam Singh Rajput and Oyiza Adepitan**

Advisor: Michelle Tigges

*Preparation and Crystallization of High-Purity C5-Aryl Pyrazolidinone Analogs*

**Trinh Pham**

Advisor: Craig Jasperse

*Lipid Composition Analysis of a Psychrophilic Bacteria*

**Mikaela Hanson, Erhiga Ekhama, Daniel Skoglund, and Fanta Barrow**

Advisor: Michelle Tigges

*Chemical Detection of the Major Classes of Endocrine Disrupting Compounds in Red River Water 2017*

**Yaa Pokua Osei Sarpong, and Iman Mohammed Ali**

Advisor: Shawn Garrett

*Synthesis of Pyrazolidinones: Analogs of the Drug Antipyrine*

**Hawau Abdulsalam**

Advisor: Craig Jasperse

*A Biochemical Analysis of Gilbert's Syndrome*

**Victoria Gilbert and Ashley Rezachek**

Advisor: Shawn Garrett

*Biochemistry of Oculocutaneous Albinism Type 1*

**Amanda Kemper, Laura Keimig, and Katherine Budke**

Advisor: Shawn Garrett

*Synthesis of Ligands from the Amides of 2,6-Pyridinedicarboxylic Acid*

**Hunter Strum and Jordan Feder**

Advisor: Jeffrey Bodwin

*Tying up: A Biochemical Analysis of Polysaccharide Storage Myopathy*

**Jordan White and Amanda Lee**

Advisor: Shawn Garrett

*Familial Amyotrophic Lateral Sclerosis and the Role of SOD1*

**Mikaela Hanson, Ashley Strube, and Kendra Brand**

Advisor: Shawn Garrett

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## COMMUNICATION AND JOURNALISM

*Cultivating Perceptions of Romantic Relationships Through the Effects of Social Media*

**Remington Layne, Payton Hoskins, Lindsey O'Driscoll, Ezzat Alhaidar, Lauren Freichels, Anne Dunham**

Advisor: Anthony Ocana

*Who Will Help? A Study of Social Identity and Uncertainty Reduction Theory*

**Mary Gangl**

Advisor: Anthony Ocana

*Path Finding for Autonomous Vehicles*

**Kyle Ross**

Advisor: Yurii Boreisha

*The Impact of Facebook Friend Requests between the Parent and Adolescent*

**Remington Layne, Marcus Erickson, Justin Duinick, and Nickolas Kuzas**

Advisor: Anthony Ocana

*Applying Expectancy Violations Theory to Interpersonal Professor-Student Relationships*

**Shelbey Marthaler, Kelly Carpenter, Taylor Borg-Sele, and Amanda Voelkel**

Advisor: Anthony Ocana

*Self-Objectification and the Media*

**Marcus Erickson, Kaelin Kraker, Blake Nemecek, Sarah Swenson, and Jaime Sjoblom**

Advisor: Anthony Ocana

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## COMPUTER SCIENCE AND INFORMATION SYSTEMS

*Speaking in Code*

**Abel Pavicic**

Advisor: Yurii Boreisha

*Video Game Algorithms Library*

**Anthony Nemmaoui-Ferre**

Advisor: Yurii Boreisha

*Exploring the Deep Web*

**Shine-Od Davaakhuu**

Advisor: Yurii Boreisha

*Machine Learning in Research*

**Sarah Oksol**

Advisor: Yurii Boreisha

*Wireless LAN Security*

**Brian Ternes**

Advisor: Yurii Boreisha

*Internet of Things*

**Angat Lamichhane and Sulayman Saho**

Advisor: Yurii Boreisha

*Generating Polyphonic Music using Convolution with LSTM*

**Binaya Bhattarai**

Advisor: Yurii Boreisha

*Digital Video Editing and Sony Vegas Pro 9.0*

**Carly Sturlaugson**

Advisor: Yurii Boreisha

*Modern Linear Regression Techniques in The Context of Data Science*

**Samuel Erickson**

Advisor: Yurii Boreisha

*The Importance of WLAN Network Security*

**Angel Payan**

Advisor: Yurii Boreisha

*Artificial Intelligence: Brain Chips*

**Zillah Adahman and Oluwatosin Balogun**

Advisor: Yurii Boreisha

*Motion Capture with Kinect*

**Elise Johnson and Alexander Gwaltney**

Advisor: Yurii Boreisha

*Star and Galaxy Classification Using Decision Trees*

**Paige Meyer**

Advisor: Yurii Boreisha and Matthew Craig

*Cryptographic Properties of Hash Functions to Ensure Maximum Security*

**Rostand Armel Fezeu**

Advisor: Yurii Boreisha

*Examining Vector Representation Systems for Word-Sense Disambiguation*

**Katriana Davenport-Kimball**

Advisor: Yurii Boreisha

*Video Game Programming with Python*

**David Ordermann**

Advisor: Yurii Boreisha

*Nanotechnology*

**Samuel Hager**

Advisor: Yurii Boreisha

*Docker: The Adoption of Containerization*

**Jason Thompson**

Advisor: Yurii Boreisha

*A World Built by Machines*

**Jonathan Schrade**

Advisor: Yurii Boreisha

*Creating the Truly Immersive Virtual Reality*

**Zachariah Johnson**

Advisor: Yurii Boreisha

*Python Computer Vision*

**Avery Knight and Kyle Petersburg**

Advisor: Yurii Boreisha

*Accessing the Internet through Light*

**Michael Armstrong**

Advisor: Yurii Boreisha

*Securing Cloud Computing*

**Moutaspha Ali**

Advisor: Yurii Boreisha

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## COUNSELING AND STUDENT AFFAIRS

*Development of a Peer Advising Program Manual*

**Laura Baier**

Advisor: Lisa Karch

*Dual Enrollment Experience in High School: Impact on Collegiate Student Success*

**Audrey Cole**

Advisor: Lisa Karch, Clinton Bueling, and James Anderson

*Closing the Achievement Gap through Advancement Via Individual Determination*

**Michael Morford**

Advisor: Taryn Akgul and Lisa Karch

*Learning to Lead: A Comprehensive School Counseling Leadership Program for At-Risk Students*

**Courtney Roatch**

Advisor: Taryn Akgul, Lisa Karch, and Becky Boyle Jones





# PRESENTATION LISTINGS

## ECONOMICS, LAW AND POLITICS

*Assimilation of Ethiopian Jews in the Mainstream Israeli Community*

**Blene Woldeselasse**

Advisor: Paul Kramer

*The more the merrier? A Case Study Analysis on the Economic Effect of Population Control Policies in Sub-Saharan Africa*

**Arnold Ikpatt**

Advisor: Tonya Hansen

*Business Climate and Poverty Rates: A State-by-State Analysis*

**Cody Rittenhouse**

Advisor: Tonya Hansen and Oscar Flores-Ibarra

*Pluralism in Economics: A Student's Perspective*

**Zachary Lund**

Advisor: Tonya Hansen

*Is America Subsidizing Heart Disease?*

**William Deane**

Advisor: Tonya Hansen

*What Influences Income Inequality? An Economic Analysis*

**Fanuel Asrat**

Advisor: Tonya Hansen

*Economic Man vs. Human Man: A Comparison of Classical Economic Theory to the Real World through Experimental Methods*

**Nana Aba Boadu**

Advisor: Tonya Hansen

*Economic Resiliency During the Great Recession: A Spatial Analysis Comparing the Tri-State Area to the U.S.*

**Taylor Rodriguez**

Advisor: Tonya Hansen

*Rural and Urban Usage of Childcare Subsidies: An Economic Analysis*

**Tatiana Estevam De Araujo E Silva**

Advisor: Tonya Hansen

*Absolute Income Mobility and the American Dream: Does Public Policy have an Impact?*

**Alexander Johnson**

Advisor: Tonya Hansen

*The Past, Brexit, the Future: Insights for Firms and Investors*

**Moyinoluwa Abiola**

Advisor: Tonya Hansen

## EDUCATION

*Alternative Classroom Seating*

**Natalie Huntley**

Advisor: Erin Gillett

*ACTFL Scale of Proficiency in American Schools*

**Hannah Bjorem**

Advisor: Sheila Marquardt

*School Food Allergy Policy*

**Drew Krull**

Advisor: Sheila Marquardt

*Music and Classroom Behavior*

**Kaele Peterson**

Advisor: Sheila Marquardt

*7E Lesson Plan – Explore*

**Jared Saunders**

Advisor: Richard Lahti

*Evaluation in a 7E Chemistry Lesson Plan- Part 7 of the 7 Part Series*

**Isaac Skalsky**

Advisor: Richard Lahti

*7E Lesson Plan*

**Daniel Grande**

Advisor: Richard Lahti

*Exploring the Role of Occupational Therapists in Different Settings*

**Alexis Hell**

Advisor: Keri DeSutter

*Using Self-Monitoring to Improve Classroom Behavior of Sixth-Grade ELL Student*

**Samantha Brunn**

Advisor: Oliva Melroe

*College Students' Perceptions of Children and Young Adults with Disabilities*

**Madison Radel**

Advisor: Marci Glessner

## HEALTH AND PHYSICAL EDUCATION

*A Literature Review: Cupping Therapy – General Use and Effectiveness*

**Shunichi Takitsu**

Advisor: Jay Albrecht, Dawn Hammerschmidt, and Keith Wiederich

*A Literature Review: Dehydration Effects on Human Performance*

**Lisa Sang**

Advisor: Jay Albrecht, Dawn Hammerschmidt, and Keith Wiederich

*A Literature Review: Whole-Body Cryotherapy in Patient and Athletic Populations*

**Shawn Sherman**

Advisor: Jay Albrecht, Dawn Hammerschmidt, and Keith Wiederich

*A Literature Review: Kinesio Taping-Success or Scam*

**Markelle Duttonhefner Ziegler**

Advisor: Jay Albrecht, Dawn Hammerschmidt, and Keith Wiederich

*A Literature Review: Ankle Sprain Management; Taping versus Bracing*

**Jesse Differding**

Advisor: Jay Albrecht, Dawn Hammerschmidt, and Keith Wiederich

*A Literature Review: Delayed Onset of Muscle Soreness (DOMS)*

**Shae Brown**

Advisor: Jay Albrecht, Dawn Hammerschmidt, and Keith Wiederich

*A Literature Review: Bridge Enhanced ACL Repair*

**Sydney Klein**

Advisor: Jay Albrecht, Dawn Hammerschmidt, and Keith Wiederich

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*A Literature Review: Massage Therapy in Sports & Athletic Performance*

**Alexis Berscheit**

Advisor: Jay Albrecht, Dawn Hammerschmidt, and Keith Wiederich

*A Literature Review: Psychological and Psychosocial Impacts Associated with Youth Sport Participation*

**Leah Cherney**

Advisor: Jay Albrecht, Dawn Hammerschmidt, and Keith Wiederich

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## HISTORY, LANGUAGES, CRITICAL RACE & WOMEN'S STUDIES

*Slavery at Fort Snelling*

**Gage Rieder, Lisa Sang**

Advisor: Yolanda Arauza

*A Literature Review: Whole-Body Cryotherapy in Patient and Athletic Populations*

**Shawn Sherman**

Advisor: Jay Albrecht, Dawn Hammerschmidt, and Keith Wiederich

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## MATHEMATICS

*Risk Management in the North Dakota Agriculture Industry*

**Leslie Miller**

Advisor: Mohamed Elbannan

*Knot Theory*

**Jorde Hutton, Rebecca Ostby, and Rebecca Burlingame**

Advisor: Damiano Fulghesu

*The Collatz Conjecture: An Analysis*

**Samuel Holen**

Advisor: Adam Goyt

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## MEDIA ARTS AND DESIGN

*Gamedays, Screenplays, and Speech Design*

**Sarah Hagler**

Advisor: Anthony Adah

*Script to Screen: Final Projects from Techniques of Directing*

**Erin LeMair, Joseph Greening, Brianna Overstreet, and Aaron Beck**

Advisor: Thomas Brandau

*Inception to Exhibition: Jazzy and Mumbo*

**Aaron Beck, Jordan Kilian, Tannah Gillman, and Trenton Smith**

Advisor: Thomas Brandau

*Scared as Hell: A Practice Led Horror Project*

**Derek Bauer**

Advisor: Anthony Adah

*The Collaborative Process of Creating Book Trailers*

**Michelle Reistad, Aaron Beck, Joseph Greening, and Brandon Easter**

Advisor: Raymond Rea

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## NURSING & HEALTHCARE LEADERSHIP

*Six Sigma: A Strategy for Health Care Organizations*

**Jacqueline Volkert, Haley Cox, Ashlee Torgerson, Paris Williams, and Molly Zachman**

Advisor: Jitendra Singh

*Structure-Process-Outcome – Applying Donabedian Quality Improvement Model to Improve Health Care*

**Daniel Danuser, Laura Kjolhaug, and Serah Demmer**

Advisor: Jitendra Singh

*An approach to improve Health Care Quality and Patient Safety*

**Tony Santos and Cecelia Winter**

Advisor: Jitendra Singh

*International Internship Experience by*

**Marah Omar**

Advisor: Jitendra Singh

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## PERFORMING ARTS

*Recording Jazz in the Real La La Land*

**Kathryn Malaktaris and Matthew Tinjum**

Advisor: Allen Carter

*The Interplay of Technology, the Compositional Process, and the Composer's Voice in Video Game Music*

**Jacob Motl**

Advisor: Laurie Blunsom

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## PHILOSOPHY

*Why David Hume is a Virtue Ethicist*

**Jerad Satrom Vanzee**

Advisor: Marilea Bramer

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## PHYSICS AND ASTRONOMY

*Development of Image Calibration Software for Variable Star Astronomy*

**Andrew Block and Adam Hanson**

Advisor: Matthew Craig

*Development of image calibration software for variable star astronomy*

**Elias Holte**

Advisor: Matthew Craig

*Gamma Ray Spectroscopy*

**Andrew Block and Adam Hanson**

Advisor: Linda Winkler and Ananda Shastri

*Determining Magnetic Dipole Moment of a Snooker Ball*

**Elias Holte and Laura Maixner**

Advisor: Linda Winkler

*The Martian Path*

**Boston Heaford**

Advisor: Sara Schultz

*Automating Photometry with Python*

**Laura Maixner**

Advisor: Matthew Craig



# PRESENTATION LISTINGS

*Studying Asteroid with Python*

**Andrew Block**

Advisor: Juan Cabanela and Matthew Craig

*Geology of the Solar System*

**Elizabeth Dougherty**

Advisor: Sara Schultz

*Applying Different Salt Concentration in Agar Solution to Improve the ECG Signal*

**Milka Rahman**

Advisor: Ananda Shastri

*The Science Behind Interstellar*

**Jane Glanzer**

Advisor: Sara Schultz

*Moons of the Solar System*

**Andrew Block**

Advisor: Sara Schultz

*ECG Noise Study Due to Different Flow Rate of a Peristaltic Pump*

**Chidubem Enebechi and Paige Meyer**

Advisor: Ananda Shastri and Brian Wisenden

*NMR*

**Sakurako Tani**

Advisor: Ananda Shastri

*Zebrafish Candidacy for Electrocardiograms*

**Andrew Louwagie Gordon**

Advisor: Ananda Shastri

*Variable Stars in the Field of TrES-3b*

**Erin Aadland**

Advisor: Matthew Craig

*X-Ray Spectroscopy*

*Erin Aadland, Salim Abdou Thomas, and*

**Donald Umeh**

Advisor: Linda Winkler

*Microwave Scattering from a Crystal*

**Aidan Shafer and Paige Meyer**

Advisor: Linda Winkler and Ananda Shastri

## PSYCHOLOGY

*Micro Expressions and the Ability to Detect Deception Among Predisposed Personality Traits*

**Abel Said**

Advisor: Rochelle Bergstrom

*Geographical Location and the Development of LGBT Youth*

**Whitney Shegrud, Donald Lemon, Jack**

**Luebbe, Luke Gietzen, Caiden Rheault,**

**Rachel Goetz, Lauren Seibert, Ariana**

**Kimble, Katie Holzheimer, Jamison**

**Cortinas, Isaac Heiser, and Lauren Seibert**

Advisor: Charles Mugi

*What is Beautiful is Good: Implicit and Explicit Bias in Restaurant Hiring Decision*

**Tyler Carlson**

Advisor: Mary Devitt

*Analysis on the Effects of Word Confusability in Applied Settings*

**Bianca Milz**

Advisor: Christine Malone

*Brief Self-Affirmation Intervention for Visual Spatial Task when Confronted with Stereotype Threat*

**Bianca Milz**

Advisor: Rochelle Bergstrom

*Acculturative Practices of International Students*

**Elshaday Dessie, Musie Amanuel Lakew,**

**Seblewongel Dagne, Mahlet Teferra,**

**Genet Negash, Christopher Agoro,**

**Donald Lemon, and Kwan Yuen Lam**

Advisor: Charles Mugi

*Participatory Research Experiences Using Culture Circles*

**Elshaday Dessie, Mahlet Teferra, Genet**

**Negash, Christopher Agoro, Kwan Yuen**

**Lam, Donald Lemon, Seblewongel**

**Dagne, and Musie Amanuel Lakew**

Advisor: Charles Mugi

*Increasing Reading Fluency in a Third-Grade Student Using Paired Reading*

**Kelsey Ott**

Advisor: Lisa Stewart

*The Use of Sound Partners Reading Program to Increase Reading Skills in Two Second Grade Students*

**Megan Davis**

Advisor: Lisa Stewart

*The Effect of Google on Memory Retrieval*

**Shelby Pearson**

Advisor: Rochelle Bergstrom

*Sexual Assault Prevention: The Effects of a Priming Intervention on the Likelihood of Intervening*

**Alexis Adelman**

Advisor: Rochelle Bergstrom

*Giving Beautiful People an Unwarranted Break: Physical Attractiveness and Perceptions of Crime Severity*

**Tyla Dahl-Monroe**

Advisor: Rochelle Bergstrom

*Extraverts and Introverts: Naturalistic Baby Vocalizations as a Distractor*

**Emma Johnson**

Advisor: Rochelle Bergstrom

*Personality and Noise: An Evaluation of How Continuous and Intermittent Noise Affect the Memory of High and Low Level Extroverts*

**Logan Ackerman**

Advisor:

*Pictures and Praise: Improving Behavior of a Kindergarten ELL Student*

**Tia Marthaler**

Advisor: Lisa Stewart

*Response to the Cry of a Baby: Physiological Responses and Self-Reported Behavior*

**Molly Kraemer and Megan Weiler**

Advisor: Elizabeth Nawrot

*Using Math Words Matters: Math Concept Development in Preschool*

**Joshua Johnson, Ashley Doll, and Kate**

**LeBrasseur**

Advisor: Lisa Stewart

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## SOCIOLOGY & CRIMINAL JUSTICE

*A Sociological Study on Unravelling: How Somali Immigrants View the Experience of Divorce*

**Abdi Osman**

Advisor: Lee Vigilant

*"I took it because it was required:" Incoming College Females viewpoints on Sexual Violence Program*

**Blessing Babarinde**

Advisor: Lee Vigilant

*"At the End of the Day You Only Have One Pair of Eyes:" Influences on Contact Lens Compliance among College Students*

**Linda Vue**

Advisor: Lee Vigilant

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## SPEECH LANGUAGE HEARING SCIENCES

*The Role of Voice Modification Therapy on Perceptions of Femininity in Male-to-Female Transgender Clients*

**Lydia Olson**

Advisor: Kris Vossler

*Vocational Rehabilitation and Return to Work Following Traumatic Brain Injury*

**Grant Peterson**

Advisor: Nancy Paul

*Parent/Caregiver-Implemented Language Intervention for Late Language Emergence: A Systematic Review*

**Rebecca Ryan**

Advisor: Kris Vossler

*Under- and Over- Identification of Language Disorders in Culturally and Linguistically Diverse Students: The Challenges of Culturally Competent Assessment*

**Benjamin Fraase**

Advisor: Elaine Pyle

*Effect of Parkinson's Disease on Dementia, Dysarthria, and Dysphagia*

**Jessie Clark**

Advisor: Nancy Paul

*Impact of Head Start Programs on Literacy Development*

**Alexis Martinsen**

Advisor: Kris Vossler

*A Review of Childhood Apraxia of Speech Treatment Approaches*

**Jasmine Nelson**

Advisor: Kris Vossler

*Incorporating Music into Therapy for Individuals with Dementia*

**Anne Schmaltz**

Advisor: Nancy Paul

*A Review of the Swallowing Difficulties in the Pediatric Populations with Pierre Robin Sequence, Prader-Willi Syndrome, and Treacher-Collins Syndrome*

**Lindsay Kloos**

Advisor: Elaine Pyle

*The Role of the Speech-Language Pathologist in the Neonatal Intensive Care Unit*

**Kilary Zinke**

Advisor: Nancy Paul

*Interventions for Individuals with Mild Cognitive Impairment*

**Karlee Peterson**

Advisor: Nancy Paul

*Interprofessional Collaboration: Opportunities for Speech Language Pathologists and Occupational Therapists Working with Children on the Autism Spectrum*

**Danielle Olson**

Advisor: Elaine Pyle

*Vocabulary Selection for Augmentative and Alternative Communication*

**Katie Gregoire**

Advisor: Kris Vossler

*Technology Used During Intervention with School-Age Children and Adolescents with Oral and Written Language Disorders*

**Allison Girtz**

Advisor: Kris Vossler

*An Overview of Collaborative Teaming and its Implementation by Speech-Language Pathologists in the Education System*

**Mary Violet**

Advisor: Kris Vossler

*Current Management of Dysphagia in the School Setting*

**Haley Colby**

Advisor: Nancy Paul

*Supraglottic Laryngectomy: Effects on the swallowing process*

**Annie Hockhalter**

Advisor: Nancy Paul

*Cognitive-Communication Treatment for Pediatric Patients with Traumatic Brain Injury*

**Rachel Yonkovich**

Advisor: Nancy Paul

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## VISUAL ARTS

*STEAM Ahead: Art's Integration for Tomorrow's World Changers*

**Julianne Feir**

Advisor: Bradley Bachmeier

