**­18ths Annual Undergraduate Research Conference**

**Wednesday Nov. 29, 2023**

# **ABSTRACTS**

## **Table of Contents**

Purpose……………………………………………………………………...1

How the Conference Started………………………………………………1

Conference Schedule………………………………………………………2

Keynote Speaker……………………………………………………………5

Abstracts…………………………………………………………………….12

## **Purpose**

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

## **How the Conference Started**

The conference was initiated fall of 2006 by Dr. Emily Deaver, Professor Emeritus of Environmental Science. After she and Dr. Thomas Dilley conducted an Environmental Science program review in 2005-2006, it was clear that their science students needed more experience conducting research and communicating the results of that research to the broader community. The 1st Annual SMSU Undergraduate Research Conference was designed as a mechanism for SMSU science students to engage in a professional exchange of scientific ideas, as well as a means to showcase and celebrate their hard work and accomplishments. The first year program included 21 oral and 27 poster presentations from science students in Environmental Science, Biology, Physics and Chemistry. Because of the positive feedback from the academic community, the conference was expanded to include ***all*** disciplines across campus. Fall 2007 the 2nd Annual SMSU Undergraduate Research Conference doubled the number of presenters with 13 different programs across campus participating. This year, the 16th year of the SMSU Undergraduate Research Conference, there are 17 different programs participating, with 26 different faculty advisors. In total, there are 128 different undergraduate students presenters, divided between 33 oral, 56 poster, and 8 virtual presentations, as well as 5 students participating in a musical recital. The hope is that the conference will continue to be a vibrant highlight of the academic year that emphasizes and celebrates the intellectual achievements of SMSU undergraduates. Thank you to the David B. Jones Foundation for their generous support.

## **Remembering Dr. Thomas Dilley, Professor of Environmental Science**

During this year’s Undergraduate Research Conference, we take time to remember and honor the life and contributions of Dr. Thomas Dilley, Professor of Environmental Science, who passed away on November 15, 2023. Tom had an outstanding record of teaching, research, and service during his almost 24 years at SMSU. He was an energetic and enthusiastic instructor with a passion for geology that captured and enthralled students. He pursued his own professional research as well, publishing A “Guidebook to the Geology of Anchorage, Alaska”, and writing a chapter for the book “Draining the Great Oasis”. He had 34 other professional publications and presentations and brought in more than $168,000 in grants to the university. Tom supervised more than 130 different student research projects and was a Co-Coordinator of the SMSU Undergraduate Research Conference beginning in 2006. Tom was a valued member of the Science Department helping with a variety of committees and activities, even taking a turn serving as Department Chair. Tom found time to do community outreach as well, giving numerous invited talks on climate change, setting up activities for the Boys Scouts and teaching with the Science & Nature Conference each year. A consummate professional, Tom embodied the best of academia - a true love of learning that enriched all those around him.

## **Conference Schedule**

### **WELCOME AND KEYNOTE**

Zoom Link: https://minnstate.zoom.us/j/93125456437

Password: URC2023

8:30..............Dr. Kumara Jayasuriya, SMSU President, Opening Remarks

8:40..............Michael Beedle ’90, M.S. Public Health, Section Supervisor, United States Environmental Protection

Agency, Federal Managers Association Chapter 375 President,

Keynote Address: Be Open to Opportunities

### **ORAL SESSION**

Upper Level SMSU Conference Center & via Zoom

Zoom Link: https://minnstate.zoom.us/j/93125456437

Password: URC2023

Biology, English, Environmental Science, History, Theatre

9:45..............Madi Foutz, Environmental Science, The Effects of the Marshall Wildfire on Soil Properties

10:00............Claudia Lensing, Biology, Seasonal Changes in Bat Calls in the SMSU Wildlife Area

10:15............Ansen Dulas, Environmental Science, Water Quality Comparison Between Rural and Suburban Minnesota Lake

10:30............Jackson Vierstraete, Biology, Examining Anolis carolinensis territorial behaviors in response to intrasexual competition

10:45............BREAK

11:00............Carter Schmitz, History, WWII Propaganda In the U.S: Film’s impact on the spread of propaganda 1940-1945

11:15............Nathan Lear, History, The Internment of Japanese Americans During World War II

11:30............Isaiah Krumbach, History, Food Rationing in the U.S during the Second World War

11:45............Chad Laurila, History, Exploitation of Immigrant Iron Miners of Northern Minnesota

12:00............LUNCH BREAK

12:30............Olivia Chester, English, Northern Wings, Senior Portfolio

12:45............ Ashley Malecha, English, Seeing Life Through a Different Lens: A Senior Portfolio Reading

1:00..............Sebastian Flores, English, An Analysis of 1984

1:15..............Abigail Agra, English, Misalignment: The Awakening and After Leaving Mr. Mackenzie

1:30..............Molly Green, Theatre, Pop Art Inspired Makeup Application

1:45..............Richard Chong and Savanna Busch, Biology, Anolis arolinensis and Response to Multimodal

Predatory Signals

2:00..............Michele Stai, Dylan DeSmet, and Terry Van Note, Biology, The Effects of Moisture Regime on Brassica rapa Growth and Reproduction in Terraria

2:15..............Ansen Dulas, Joren Palmer, and Rickey Jones, Biology, The Effects of Fertilizer Concentrations on Switchgrass (Panicum virgatum)

2:30..............BREAK

2:45..............Laura Schmig and Rebeca Temotio Biology Anolis carolinensis Behavioral Responses and Communication in Intraspecific Interactions

3:00..............Josephine Lentz, Sarah McDonald, Madi Foutz, and Moshood Agboola, Biology, Effects of Soil Abiotic Factors on Native Versus Non-Native Plant Species

3:15..............Terry Van Note, Biology, The Effects of Simulated Hissing on the Behavior Madagascar Hissing Cockroaches

3:30..............Austin Dean, History, Robert Owen

3:45..............Gage Peterson, History, New History of Education in Southwest Minnesota; A Comparison of Teaching Styles from Early 2000’s to Present Day

4:00.............Sam Burke, History, Anti-Capitalist Themes in Pro-Slavery Thought in The Antebellum South

4:15.............Cassie Powelson, History, Women in Education

4:30.............Bryn Mongeau, Theatre, Design and Construction of a Light Box

### VIRTUAL SESSION 1

VIA ZOOM 10:30 - 11:45AM

Zoom Link: https://minnstate.zoom.us/j/97208867707

Password: URC2023

Room Moderator: Mostafa Hegazy

History, Psychology

10:30............Michelle Diaz, History, History, Cultural Wars and the American Classroom

10:45............Emily Waldorf, Jim Callies, and Olivia Bennot, Psychology Assessing Vividness of Mental Imagery

11:00............Gregg Blanchette, History, French-Canadian InfluentialImmigration to Kankakee County, IL, and the Driving Force Behind it

11:15............Julia Sullivan, History, The Treaty of Mendota and Traverse des Sioux 1851

11:30............Sydney Eich, History, The 1883 Rochester Tornadoes

### VIRTUAL SESSION 2

VIA ZOOM 2:00 - 3:15PM

Zoom Link: https://minnstate.zoom.us/j/98616918384

Password: URC2023

Room Moderator: Charlotte Wahle

Accounting, Computer Science, History

2:00............Renata Caponi, History, Paganistan and the Police

2:15............Lacey Popowski and Shantel Quaintance, Accounting, The Impact Of Covid-19 On The Ability For

Accountants To Work Remotely

2:30............Brandon Ballard, History, Gettysburg Perception

2:45............Dennis Kienetz, Accounting, Cryptocurrency and its Effect on Accounting

3:00............Eyuel Dagne, Computer Science, Access Control Using Radio Frequency Identification (RFID) Sensor

### STUDENT RECITALS

1:00 - 1:50PM

Fine Arts Theatre

Samantha Moeller, Music, Allegro in A minor, D 947 Lebensstürme

Margeaux Belanger, Music, Pocket-Size Sonata No. 2

Jamie Snyder, Music, Fleur Desséchée

Luke Hammerschmidt, Music, Auf dem Hügel sitz ich Spähend

Alec Ashby, Music, First Sonata for Flute and Piano

### **POSTER PRESENTATION SESSION**

Lower Level of the SMSU Conference Center

Posters displayed 8:30 am - 4:30 pm

Accounting, Agribusiness Management, Biology, Computer Science, Exercise Science, History, Hospitality Management, Music, Philosophy, Political Science, Psychology, Sociology, Theatre

1...................Julie Chesley, Accounting,Consolidation Worksheet, 9:45-11:15

2...................Claire Eckstein, Accounting , The Importance of Good Bookkeeping Practices, 9:45-11:15

3...................Lily Htoo and Maija Geier, Accounting, Why Career in Accounting, 9:45-11:15

4...................Brady Brosz, Accounting, How Management uses Cost Accounting to Make Decisions, 10:30-12:00

5...................Becca Funk, Accounting, Financial Accounting vs. Managerial Accounting, 10:30-12:00

6...................Jessica Jacobson, Accounting, Management’s use of Cost Accounting, 10:30-12:00

7...................Nicholas Irlbeck, Accounting, Databases in Accounting, 1:00-2:30

8...................Abdullahi Omar & Zain Mian, Accounting, Communication Skills in Tax Accounting, 1:00-2:30

9...................Macy Joens and Madison Douvier, Agribusiness Management, Education in Afghanistan, 1:00-2:30

10.................Moshood Agboola Ojora-Williams, Biology, Effects of Obesity on Skeletal Muscle Contraction, 9:45-11:15

11.................Josephine Lentz, Biology, A Look at Plasticity Regeneration after Spinal Cord Injury, 10:30-12:00

12................Claudia Lensing, Biology, Effects of Coral Bleaching on Corallivorous Fish, 1:00-2:30

13.................Nijie Nauden, Biology, Does a Pesticide-Parasite Relationship Contribute to Frog Deformities?, 2:30-4:00

14.................Jonah Nielsen, Computer Science, Taskmaster: A Scheduling and Notetaking App, 9:45-11:15

15.................Bamlak Assaye and Tyler Bliss, Computer Science,Ocean Dominance: Naval Warfare, 9:45-11:15

16.................Esrom Tadesse, Abenezer Legesse, and Natnael Bacha Computer Science, Bank Management System, 9:45-11:15

17.................Humza Khan, Computer Science ,VioletMIDI: A Portable, Lightweight Music Composition App, 10:30-12:00

18.................Mohamed Abdi ,Computer Science, Weather Desktop Application, 10:30-12:00

19.................Oyindamola Owolabi and Birkti Ayele, Computer Science Culinary Coding: Developing A Curated Recipe Website Using HTML, CSS, JavaScript, SQL And PHP, 10:30-12:00

20.................Caleb Boyum, Computer Science, Digital Quarto, 1:00-2:30

21.................Martin Olsen, Computer Science, Distributed Data Processing over a RISC-V Cluster, 1:00-2:30

22.................Hamlet Santana and Cesar Portillo, Computer Science, 2D Game Engine, 1:00-2:30

23.................Ali-Muhammad Nathani, Computer Science, Predictive Analytics with Machine Learning, 2:30-4:00

24.................Kirubel Kebede, Computer Science, Hospital Website Development, 2:30-4:00

25.................Ellie Anselment, Computer Science, Improved Point of Sale System, 2:30-4:00

26.................Franklin Roa, Ble Michela N’Guessan, and Frederick Fermin, Computer Science,CalBuddy- College Time Made Easy, 2:30-4:00

27.................Evan Steinhauser, Cameron Peterson, Aiden Engstrom, Martin Kochis, Robin Clark, Culinology, Development of Low- calorie, Nutrient Rich Edamame Snack Chips for Commercialization, 1:00-2:30

28.................Davis Moseng and Sammie Kling, Exercise Science, Comparison of Five Different Body Fat Percentage Methods in College Students, 2:30-4:00

29.................Benjamin Engels, History, Lincoln County Seat, 9:45-11:15

30 ................Samantha Moeller, Music, “Life’s Storms” – An Examination Of One Of Schubert’s Piano Four-Hands, Masterworks, 9:45-11:15

31.................Margeaux Belanger, Music, The Musical Stylings of Pocket-Size Clarinet Sonata No. 2, 9:45-11:15

32.................Jamie Snyder, Music, Rising Above Barriers: Women in 19th Century Music, 10:30-12:00

33.................Luke Hammerschmidt, Music, How Ludwig Van Beethoven Created the Modern Song Cycle, 10:30-12:00

34.................Alec Ashby, Music, Structural and Stylistic Analysis of the First Movement of the First Flute Sonata by Bohuslav Martinu, 2:30-4:00

35 ................James Gully, Philosophy, Investigating the State of Nature, 9:45-11:15

36.................Ashton Ayres, Philosophy, What Should Human Law Do?, 1:00-2:30

37.................Ashton Ayres, Political Science, Communities Without Police: The Impact and Result, 9:45-11:15

38.................Addy Wolbaum, Political Science, Policy Implications on the Increase of Missing & Murdered Indigenous Women in Minnesota, 10:30-12:00

39.................Moshood Agboola Political Science, Can the “Treat and Reduce Obesity Act” cut obesity levels in the United States?, 1:00-2:30

40.................Hunter Smith, Political Science, Economic Impact of Municipal Liquor Monopolies on Localities in Southwest Minnesota, 1:00-2:30

41.................Houa She Yang, Political Science, “Solutions for Rural Child Care: Building from the Ground Up”, 1:00-2:30

42.................Stephen Zimmer, Political Science, The Greater Housing Problem of Greater Minnesota, 2:30-4:00

43.................Samuel Lund, Political Science, Intellectual Property Versus Farmers’ Right to Repair, 2:30-4:00

44.................Megan Anspach, Psychology, The Effect of Divided Attention on Cognitive Control, 10:30-12:00

45.................Abby Boxrud and Aislinn Perkins, Psychology, The Effect of Dynamic Visual Noise on Memory for Concrete vs. Abstract Information, 1:00-2:30

46.................Macie Langstraat, Psychology, Social Comparison, Gender, and Personality: Gender Differences in Upward and Downward Social Comparison, 2:30-4:00

47.................Haylee Johnson, Jessica Kruk, and Stacey Engelkes, Psychology, Vividness of Visual Imagery and the Frequency of Creating Mental Images, 2:30-4:00

48.................Kylie Thelen, Mykal Barker, and Haley Schultz, Sociology, Barriers to Using the Mustang Market,10:30-12:00

49.................Addy Wolbaum, Joe Buelow, and Jordon Peterson, Sociology, Status of Food Security, 1:00-2:30

50.................Drew Zander Middendorf, Gary Barnes, and Zander Nav Noordwyk, Sociology, Conclusions and Suggestions for the Mustang Market, 1:00-2:30

51.................Brianna Chatterton, Jessica Bohl, and Morgan Warner, Sociology, Awareness and Use of the Mustang Market, 2:30-4:00

52.................Brooke Burns, Theatre, The Beginning of Special Effects Makeup, 9:45-11:15

53.................Priscilla Muehr, Theatre, The Horrors of Unsafe Makeup, 10:30-12:00

54 ................Raquel Matias, Theatre, Scrapes and Bruises, 10:30-12:00

55 ................Laura Bradley, Theatre, Contouring the Face, 1:00-2:30

### **CLOSING SESSION & LIBRARY RESEARCH AWARD ANNOUNCMENT**

Upper Level SMSU Conference Center & Zoom

Zoom Link: https://minnstate.zoom.us/j/93125456437

Password: URC2023

4:45..............Closing Remarks and presentation of Library Research Award

## **Keynote Address**

**Be Open to Opportunities**

Michael Beedle ’90

M.S. Public Health, Section Supervisor, United States Environmental Protection Agency,

Federal Managers Association Chapter 375 President

Mike grew up in Mitchell, South Dakota and attained dual B.S. degrees in Chemistry and Biology from Southwest Minnesota State University in 1990. He moved to Illinois and worked in the environmental field for a few years and before returning to school to attain an M.S. in Public Health from the University of Illinois at Chicago. His Master’s thesis investigated firefighters’ exposures to toxic gases after a fire is extinguished. Mike has been working for the U.S. Environmental Protection Agency (EPA) Region 5 since 1997, starting as a Corrective Action Project Manager and Resource Conservation Recovery Act (RCRA) Inspector. He was promoted in 2014 to Section Supervisor in the RCRA Corrective Action and PCB Remediation Program. He is currently a Section Supervisor in the EPA’s Superfund program in the Chicago Office where he oversees an exceptional staff of both scientists and engineers cleaning up some of the most toxic sites in the nation. Before coming to EPA, Mike worked in the private sector for a hazardous waste service/cleanup company, as a part-time firefighter/EMT, and as an Industrial Hygienist for the state of Minnesota. In addition to his work, Mike is currently President of Chapter 375 of the Federal Managers Association. He has been happily married to his wife Karel for 26 years and they have two terrific adult sons, David and Max. He enjoys gardening (he comes from a long family history of farmers and gardeners), yoga, woodworking and exploring nature in his free time. He is a fan of good coffee, interesting food, and microbreweries. Mike has dedicated his professional life to to protecting health and the environment.

Mike will be sharing his life and work experiences as an environmental professional for more than 30 years. His career journey started at Southwest State University in 1985, where he pursued science degrees, became a Student Senator and President of the Biology Club. Through those pursuits, his first job opportunity was taking soil and groundwater samples at gas stations looking for contamination leaking from underground storage tanks. That experience led to further opportunities in the environmental field, pursuit of an advance degree, and laid the groundwork for a long career as an environmental professional. He receives great satisfaction out of nurturing others’ careers and seeing first hand how we can correct environmental problems caused by past and current practices. A major component of Mike’s life and career path has been saying “Yes” to opportunities when they are have been presented. Mike strongly advocates for a career in public service and environmental health, and encourages others to pursue and to say “Yes” to such opportunities.

## Oral Presentation Abstracts

Upper Level of the SMSU Conference Center & via Zoom

Biology, English, Environmental Science, History, Theatre

Zoom Link: <https://minnstate.zoom.us/j/93125456437>

Password: URC2023

1

### **Title:** The Effects of Marshall Wildfire on Soil Properties

**Presenter(s):** Madi Foutz

**Presentation Time:** 9:45

**Discipline:** Environmental Science

**Advisor:** Prof. Thomas Dilley

**Abstract**: Wildfires are a necessary natural process that have become more frequent and more intense in recent years. Depending on the severity of the wildfire, it can have differing effects on soil properties. To better understand these effects soil properties were compared at two locations after the 2021 Marshall Wildfire in Colorado. Soil samples were collected from a burned and unburned site. It was hypothesized that there would be a difference in soil properties between the two sites. Infiltration was measured using a constant head method in the field, and pH, texture, microbial activity and soil organic matter were tested in the lab. The results confirmed the hypothesis that there was a difference in every soil property measured. Expected properties such as microbial activity and SOM were reduced in the burned soil and infiltration increased, however pH decreased. These findings help illustrate the widely varying effects of fire on soil.

**2**

### **Title:** Seasonal Changes in Bat Calls in the SMSU Wildlife Area

**Presenter(s):** Claudia Lensing

**Presentation Time:** 10:00

**Discipline:** Biology

**Advisor:** Prof. Alyssa Anderson

**Abstract**: Minnesota is home to eight species of bats. Due to the frigid winters and lack of food, bats that live in this region hibernate during winter months. Here, we used a Wildlife Acoustics ultrasonic sound detector to examine the frequency of bat calls in the SMSU wildlife area. Call frequency was used to assess hibernation patterns in five local bat species: *Eptesicus fuscus, Lasiurus borealis, Lasiurus cinereus, Lasionycteris noctivagans, and Myotic lucifugus*. The detector was placed in a forested region in the wildlife area. The number of calls given by an individual species per day, as well as the time of call were analyzed to gauge hibernation status. Most calls were made between 6pm and 2am. Of species present, *Lasiurus cinereus* called most frequently. During early November, only two species were detected making calls, *Eptesicus fuscus* and Lasiurus cinereus. Understanding more about hibernation patterns could be important, especially in light of climate change predictions.

**3**

### **Title:** Water Quality Comparison Between Rural and Suburban Minnesota Lakes

**Presenter(s):** Ansen Dulas

**Presentation Time:** 10:15

**Discipline:** Environmental Science

**Advisor:** Prof. Elliot Vaughan and Thomas Dilley

**Abstract**: Water quality issues facing lakes in rural and suburban Minnesota have become increasingly common. Urbanization has led to more impermeable surfaces and faster, more prolific runoff of nutrients, pesticides, and other harmful pollutants. This enhanced runoff can also lead to increased turbidity of the water. Nitrogen, phosphorous, turbidity, pH, and chloride levels of a suburban and rural lake were analyzed. Using data collected throughout the summer, correlations were made to describe how geography and land use affect water quality. Results indicated that the rural lake had lower transparency, but higher levels of chloride and phosphate than the suburban lake, while pH was found to be very similar in both lakes. GIS land use mapping was used to help further explain the results found. It showed that the two lakes differed in shoreline structure, but the lake sheds were very similar.

**4**

### **Title:** Examining *Anolis Carolinensis* Territorial Behaviors in Response to Intrasexual Competition

**Presenter(s):** Jackson Vierstraete

**Presentation Time:** 10:30

**Discipline:** Biology

**Advisor:** Prof. Alyssa Anderson

**Abstract**: Territorial displays are a common form of intrasexual competition in males throughout the animal kingdom. Male anole lizards exhibit territorial behaviors including dewlap displays, head bobbing, or pushups when challenged by a rival male or predators. Preliminary unpublished research suggests that ultrasonic communication (communication higher than 20 kHz) may accompany the territorial behaviors of Green Anoles (*Anolis carolinensis*). The goal of this study was to examine territorial behaviors, including the possible occurrence of vocalization. To examine this, eight male anoles were housed separately, and sequentially introduced into other anoles’ home territory. Visual behaviors were documented, and the potential presence of ultrasonic communication was monitored using a Wildlife Acoustics ultrasonic recorder. Behaviors observed during introduction events included intense colorful dewlap displays, stressed standoffishness, and mouth opening behavior, a potential indicator of ultrasonic communication. This study provides a foundation for further exploration of environmental stimuli that result in territorial behavior, enhancing our understanding of anole communication.

**5**

### **Title:** WWII Propaganda in the U.S: Film’s Impact on the Spread of Propaganda 1940-1945

**Presenter(s):** Carter Schmitz

**Presentation Time:** 11:00

**Discipline:** History

**Advisor:** Prof. Jeff Kolnick

**Abstract**: It is common knowledge that propaganda is one of the main influencers in any war, World War Two is no different. Propaganda was used by the government in many ways to push a view that would get people to join in the war efforts. The goal of propaganda was to let people know what people are fighting for. Behind many of the propaganda films was a man by the name of Frank Capra, one of the most well-known directors throughout the 1930’s and 1940’s. This research paper argues that the government was not merely making propaganda films to inform the U.S people of why they are fighting but to influence the American people’s opinions about the war.

**6**

### **Title:** Japanese Internment Camps During World War II-Life in the Camps

**Presenter(s):** Nathan Lear

**Presentation Time:** 11:15

**Discipline:** History

**Advisor:** Prof. Jeff Kolnick

**Abstract**: The current study investigated the internment of Japanese Americans during World War II following the attack on Pearl Harbor. But more specifically, the daily life of Japanese Americans in these internment camps. The research done in this study include recordings of people who endured the internment camps, two books, and multiple other articles. Combining both the recordings and the secondary sources, this study will have a very accurate depiction of what daily life was like in the internment camps. During the research, there was one overarching problem that stuck out the most: the internment of Japanese Americans does not get enough coverage as it should, and it often gets brushed over when speaking about the aspects of World War II. Overall, this study will provide more information on the daily lives of Japanese Americans and the study will bring more attention to the hardships these people faced.

**7**

### **Title:** Food Rationing in the United States during the Second World War

**Presenter(s):** Isaiah Krumbach

**Presentation Time:** 11:30

**Discipline:** History

**Advisor:** Prof. Jeff Kolnick

**Abstract**: During World War II, the United States implemented a food rationing system to support the war effort. The Office of Price Administration (OPA) was responsible for preventing hoarding, curbing inflation, and distributing essential goods. The rationing system used tokens and coupons to limit the purchase of items such as dairy, meat, sugar, and canned goods. As a result, American diets changed, with people trying new eating habits such as consuming less meat and growing “Victory Gardens” to help with food shortages. Food rationing created a sense of unity in the nation, as citizens' efforts on the home front directly supported the troops overseas. It was a vital tool during the war, providing long-term perspective and wartime experiences on resource allocation and shared sacrifice. This project was supported by radio transcripts and newspaper articles from World War II.

**8**

### **Title:** The Exploitation of Immigrant Iron Miners on the Iron Range of Minnesota

**Presenter(s):** Chad Laurila

**Presentation Time:** 11:45

**Discipline:** History

**Advisor:** Prof. Jeff Kolnick

**Abstract**: In the early 1900s, the iron mining companies of Northern Minnesota would exploit the immigrant workers who could not speak a common language. Why did the mining companies do this? What made them change and want their workers to learn the common language of English? A study of primary sources includes letters from immigrants, teachers, and a legislative commission report. Secondary sources include Minnesota’s Iron Country, They Chose Minnesota, and many other articles and books. World War I caused a labor shortage for the mines of Northern Minnesota. This forced the mining companies to submit to the Minnesota Commission of Public Safety, which enforced strict wartime laws. This caused mining companies to push their immigrant workers to learn English and become naturalized citizens to avoid deportation.

**9**

### **Title:** My Northern Wings

**Presenter(s):** Olivia Chester

**Presentation Time:** 12:30

**Discipline:** English

**Advisor:** Prof. Judy Wilson

**Abstract**: Olivia draws her inspiration from the natural world. Growing up she walked barefoot in the snow and fought the ogres that lived in the ravine. Her closest neighbors were horses (Neigh-bors you could say). She was the only kid her age in the area, so she made friends with the flowers and ladybugs only to watch as they got torn up and replaced with cul-de-sacs and three floor mansions. Olivia writes to reconnect, romanticize, and share the world’s beauty. Her piece “My Northern Wings” is a creative non-fiction story about a school trip that became a part of her coming-of-age, it began as an essay on “The Day I Grew Up” and evolved. Olivia hopes to return to the Superior shores and Itasca enchantments one day soon.

**10**

### **Title:** Seeing Life Through a Different Lens: A Senior Portfolio Reading

**Presenter(s):** Ashley Malecha

**Presentation Time:** 12:45

**Discipline:** English

**Advisor:** Prof. Judy Wilson

**Abstract**: Ashley draws inspiration from places, people, and fairytales that have influenced her life. Each poem takes on its own form: an ode, a list poem, a palindrome, and a ballad. She takes the reader on a personal journey from living on her family’s farm to her father’s own personal history. After the personal, Ashley encourages the reader to look at traditional fairytales through a new lens by retelling the stories of Snow White and Little Red Riding Hood. The first two poems “Ode to County Road 47” and “Before You Held Me” explore what life was like before her family was relocated and before she was born, and the last two “Mirror, Mirror” and “Little Red” ask the questions “What if Snow White was the one who looked in the mirror” and “What if Little Red was the wolf?”

**11**

### **Title:** An Analysis of 1984

**Presenter(s):** Sebastian Flores

**Presentation Time:** 1:00

**Discipline:** English

**Advisor:** Prof. Judy Wilson

**Abstract**: George Orwell’s novel, 1984, is often misused and misunderstood by people who want to push for harmful policies and control over people’s lives. From trying to take down the right to have an abortion, to tearing down the right to have access to gender affirming care, to even rewriting history to fit their narrative. Often the people who push for those harmful policies will hide behind 1984 and claim that the other side is trying to take away their right to push for their agenda. Misusing it in such a way that muddies the waters of the true message of Orwell’s prophetic book. This literary analysis report seeks to reaffirm what Orwell stood for and how 1984 compares to our modern era and dive deep into how it should be seen.

**12**

### **Title:** Misalignment: The Awakening and After Leaving Mr. Mackenzie

**Presenter(s):** Abigail Agra

**Presentation Time:** 1:15

**Discipline:** English

**Advisor:** Prof. Judy Wilson

**Abstract**: With the overturning of Roe v. Wade, women’s rights have been retracted. Now more than ever women’s agency is key in keeping their freedoms. In Jean Rhys’ "After Leaving Mr. MacKenzie" and Kate Chopin’s "The Awakening," Edna and Julia’s depend on men for security, and they lack agency. However, despite their restrictions and dismal roles in society, Edna awakens out of her stupor to attempt a life that aligns with her value of freedom while Julia wanders about Europe unmarried and without family. These women were ahead of their time in recognizing the unnamed discontentment in their stagnant roles in society due to their limited freedoms. If women’s rights continue to regress, we may see the same stagnant roles and discontentment of the past.

**13**

### **Title**: Pop Art Inspired Makeup Application

**Presenter(s):** Molly Green

**Presentation Time:** 1:30

**Discipline:** Theatre

**Advisor:** Prof. Sheila Tabaka

**Abstract**: See the steps that go into the art of theatrical makeup. From the research stage up to the application! Theatrical makeup is an essential in any production and this presentation along with a demonstration will show just all the hard work that goes into makeup design.

**14**

### **Title:** *Anolis Carolinensis* and Response to Multimodal Predatory Signals

**Presenter(s):** Richard Chong and Savanna Busch

**Presentation Time:** 1:45

**Discipline:** Biology

**Advisor:** Prof. Alyssa Anderson

**Abstract**: Few reptile species are known to communicate vocally and no published studies document ultrasonic communication within the Reptilia. However, preliminary unpublished work suggests that *Anolis carolinesis* may vocalize in the ultrasonic range. Our goal was to establish a frequency between 115 and 120kHz, which is above the ultrasonic frequency threshold of 20 kHz. Additionally, our goal was to assess different types of ultrasonic communication, including anoles' conspecific response to predators such as birds and snakes and prey such as crickets. Each condition was tested with 2 anoles randomly selected and paired from 4 anole tanks. Ultrasonic frequencies were recorded using the Song Meter TM mini acoustic recorder and were analyzed using Kaleidoscope Pro TM software. Vocalizations ranging from 0-70kHz were recorded in congruence to mouth-opening behavior. Additionally, vocalizations were also recorded during dewlap behavior when the anole’s mouth was closed.

**15**

### **Title:** The Effects of Moisture Regime on *Brassica Rapa* Growth and Reproduction in Terraria

**Presenter(s):** Dylan DeSmet, MIchele Stai, Terry Van Note

**Presentation Time:** 2:00

**Discipline:** Biology

**Advisor:** Prof. Shelby Flint

**Abstract**: *Brassica rapa* can grow to its full size in just weeks, and this experiment put its water needs to their limits. This study tested the growth rate of Brassica rapa under different moisture levels in sealed terraria. By placing 5 seeds in 27 sealed mason jars under different moisture levels of low, medium, and high we were able to test the growth rate of B. rapa. We expect to find that B. rapa plants will grow best when exposed to consistently high moisture levels. Our preliminary findings suggest that surprisingly a medium amount of moisture may be more suitable. After this experiment has concluded this data will allow us to grow B. rapa at perfect moisture levels, so it can grow healthy, strong, and fast.

**16**

### **Title**: The Effects of Fertilizer Concentrations on Switchgrass (Panicum Virgatum)

**Presenter(s):** Ansen Dulas, Joren Palmer, Rickey Jones

**Presentation Time:** 2:15

**Discipline:** Biology

**Advisor:** Prof. Shelby Flint

**Abstract**: Switchgrass (*Panicum virgatum*), a warm-season perennial grass native to North America, spans from Canada to Mexico, providing essential wildlife habitat and exhibiting drought tolerance. It has garnered attention as a potential biofuel source due to its high yield potential and minimal input requirements. Due to increased nutrient inputs from modern agricultural practices, Switchgrass has been introduced to higher levels of nutrients in its native environments. Our research involved four groups: a control group without fertilizer and low, medium, and high fertilizer groups. Preliminary findings indicate variable germination, with lower fertilizer levels showing a positive correlation with increased growth. This study offers valuable insights into the optimal fertilizer application for switchgrass, essential for sustainable biofuel production and soil health. Understanding the effects of different fertilizer levels on switchgrass growth is pivotal for maximizing yields while minimizing environmental impact, with implications for agriculture, bioenergy, and overall sustainability.

**17**

### **Title**: Anolis Carolinensis Behavioral Responses and Communication in Intraspecific Interactions

**Presenter(s):** Laura Schmig, Rebeca Temotio

**Presentation Time:** 2:45

**Discipline:** Biology

**Advisor:** Prof. Alyssa Anderson

**Abstract**: The green anole lizard*, Anolis carolinensis*, is a well-researched reptile species characterized by its varied range of chemical and visual communication. Unpublished preliminary evidence also suggests the existence of ultrasonic communication in this species. The objective for this study is to document A. carolinensis behavioral responses, including the possibility of ultrasonic communication, in social interactions. We document the production and reception of behavior and ultrasonic signals in two scenarios; territorial defense, and in response to a mirror image of themselves, documenting a combination of visual behavioral observations and acoustic recordings. There appears to be evidence of behavioral differences in A. carolinensis in response to these stimuli such as classic territorial displays of dewlap flaring, head bobbing, ‘push-ups', and mouth opening and closing movements. Surveying the intraspecific interactions, the mouth-opening behavior seems to suggest a form of auditory communication.

**18**

### **Title:** Effects of Soil Abiotic Factors on Native Versus Non-Native Plant Species

**Presenter(s):** Josephine Lentz, Madison Foutz, Sarah McDonald, Agboola Moshood

**Presentation Time:** 3:00

**Discipline:** Biology

**Advisor:** Prof. Shelby Flint

**Abstract**: Maintaining native vegetation and limiting invasive species is critical for the remediation of ecosystems. It is important to understand how non-native species affect abiotic components such as soil and pH compared to native species. Two vegetation patches were chosen on the campus of SMSU, one with a majority of native species and one with mostly nonnative species. The vegetation was identified in each patch and CO2 respiration and temperature were measured in the field using a SMAAC censor. Soil samples were collected and tested in the lab for pH and classified using a hydrometer. The results supported our hypothesis that there would be a difference in effects on abiotic components between the patches. However, it was unexpected that CO2 respiration was higher in the nonnative patch and pH was lower. These findings show the varying impacts of vegetation species on key abiotic components of ecosystems.

**19**

### **Title:** Artificial Hissing’s Effect on Madagascar Hissing Cockroach Behavior

**Presenter(s):** Terry Van Note

**Presentation Time:** 3:15

**Discipline:** Biology

**Advisor:** Prof. Alyssa Anderson

**Abstract**: Many animals have evolved different ways of defending themselves. As the name suggests the hissing behavior of the Madagascar Hissing Cockroach (*Gromphadorhina portentosa*) is one such defense. They hiss by forcing air through their rear spiracles which creates a loud abrupt hiss to ward off predators or perceived threats. This study aims to see how artificially produced hisses affect the behavior of Madagascar Hissing Cockroaches, with the null hypothesis that there is no behavioral effect. Cockroaches (n = 19) were housed and sexed individually. All cockroaches were presented with the artificial hiss individually, and their response was recorded. Through these methods, preliminary data shows that males are much quicker to respond aggressively towards the hiss. Females, however, tend to move away or stand still. This in turn may allow future studies to account for the hissing of the Cockroaches and determine whether those may be a variable in their experiment.

**20**

### **Title:** New Harmony

**Presenter(s):** Austin Dean

**Presentation Time:** 3:30

**Discipline:** History

**Advisor:** Prof. Jeff Kolnick

**Abstract**: Robert Owen was a Welsh textile manufacturer who devoted his life to the working class. Owen was a proto-socialist who believed a “trinity of evils, being private property, religion and marriage.” Owen was not content just writing his ideas but putting them into practice. He funded one of the most expensive utopian and radical utopian communities in the United States at the time which he named “New Harmony”. The commune started with the highest of ambitions that disappointment was inevitable. For research, Owens autobiography was studied along with a first-person account of the last year of New Harmony, as well as several books on utopian communities in the United States. While Owen built New Harmony, he did just as much to destroy it. The main contributing factor to the downfall of new harmony was a widely inconsistent government that would swing from democracy to dictatorship, to the eventually dissolution altogether.

**21**

### **Title:** New History of Education in Southwest Minnesota; A Comparison of Teaching Styles from Early 2000's to Present Day

**Presenter(s):** Gage Peterson

**Presentation Time:** 3:45

**Discipline:** History

**Advisor:** Prof. Jeff Kolnick

**Abstract**: Teaching and education in general are a profession that is always changing, adapting and is something unique. Education is a topic most everyone has heard of but does not know what consists of the changes are required to better education. The focus of this research is to show the history and change of teaching, especially the past 4 years with the COVID-19 pandemic. This research is also a way for fellow learners to grow a deeper understanding of the changes, sacrifices and dedication the Marshall highschool teachers have endured in their long an successful careers and educators

**22**

### **Title:** Anti-Capitalist Themes in Pro-Slavery Thought in the Antebellum South

**Presenter(s):** Sam Burke

**Presentation Time:** 4:00

**Discipline:** History

**Advisor:** Prof. Jeff Kolnick

**Abstract**: The Pro-Slavery writers in the Antebellum South used many arguments to justify slavery-an interesting and important question is to what extent anti-capitalist arguments played a role in this. A question that has widely been discussed among scholars is whether the anti-capitalist views of George Fitzhugh-who advocated replacing capitalism with slavery and enslaving white laborers too-are the logical implications of widely held pro-slavery views. To investigate this, I looked at the writings of several prominent slavery apologists-alongside the commentaries of scholars-who have discussed their writings-in respect to this question. I found that Fitzhugh’s views are the logical outcome of this ideology-and the reasons he was willing to bite the bullet (unlike the others) was related to a mixture of sincere belief in his ideology (and the need for consistency) alongside a desire for fame. These results indicate that understanding Fitzhugh is extremely important for understanding pro-slavery ideology.

**23**

### **Title:** Women in Education

**Presenter(s):** Cassie Powelson

**Presentation Time:** 4:15

**Discipline:** History

**Advisor:** Prof. Jeff Kolnick

**Abstract**: In the United States women historically have been inferior to their male counterparts. However, one thing in particular women have dominated for quite some time is the education field. This project is going to highlight how women came to dominate the education field particularly in Minnesota. Using the book Minnesota In a Century of Change by Clifford E. Clark, Academic Course Catalogs from Carleton College and many other sources it has been found that women throughout the U.S. and in specifically Minnesota were put into the education due to being able to have a lower pay and because people thought it made them better mothers. In this project it will show how this continued throughout Minnesota’s history and even into today and if it has any effect on the education system as a whole.

**24**

### **Title:** Design and Construction of a Light Box

**Presenter(s):** Bryn Mongeau

**Presentation Time:** 4:30

**Discipline:** Theatre

**Advisor:** Prof. Tetta Askeland

**Abstract**: In theater, we use a wide variety of ways to communicate our creative vision to an audience, two of those ways are through the set and through lighting. The set tells the audience where events take place when characters are moving from one place to another, and sometimes when there is a major plot point. Lighting sets the mood and the feeling of each and every scene, it helps communicate the deeper feeling without outright saying it. While these two things are separate entities it is important that they mesh well with one another, because of that there are areas where these two creative processes meet. One of those ways has been growing in popularity and is called a light box, a light box requires several designers and technicians working on the project as there are several different skill sets required in building a light box. In my presentation, I explain the design and construction process of creating a light box.

## Virtual Session Abstracts

Morning Virtual Session: History, Psychology

Zoom Link: [https://minnstate.zoom.us/j/97208867707](https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fminnstate.zoom.us%2Fj%2F97208867707&data=05%7C01%7CAlyssa.Anderson%40smsu.edu%7C4278bdb9b4d24ff9474908dbe49fa827%7C5011c7c60ab446ab9ef4fae74a921a7f%7C0%7C0%7C638355146584415551%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=9HxgMRgdG9f3EHzXyoJxcAhKp1EhAeQuG5UrSIfIDEw%3D&reserved=0)

Password: URC2023

**1**

### **Title**: History, Culture Wars and the Classroom

**Presenter(s):** Michelle Diaz

**Presentation Time:** 10:30

**Discipline:** History

**Advisor:** Prof. Jeff Kolnick

**Abstract**: The relationship between history, cultural wars, and K-12 education in America has been a source of contention for many years. This research provides an opportunity to explore the many influences of cultural wars on American history education over the past century. It examines the inclusion or exclusion of historical topics, noting the presence of biases, and considers the various educational resources used or discarded to educate students during the past century. The research also focuses on historians' efforts to create a safe and respectful environment in and out of American classroom, allowing for open discussions and debates to various points of view. This fosters a comprehensive examination of historical sources used to teach students as they develop the use of critical thinking to examine sources. By analyzing the past, this study highlights the importance of creating a comprehensive history education that fosters inclusivity and promotes the analysis of multiple perspectives.

**2**

### **Title**: Assessing Vividness of Mental Imagery

**Presenter(s):** Emily Waldorf, Olivia Bennot, Jim Callies

**Presentation Time:** 10:45

**Discipline:** Psychology

**Advisor:** Prof. Benjamin Anderson

**Abstract**: Mental imagery is used for everyday tasks, including schoolwork. A mixed methods study was conducted to explore how mental imagery is used while completing various tasks and to what extent vividness of imagery is associated with frequency of using imagery. The survey included the Vividness of Visual Imagery Questionnaire (VVIQ-2; Marks, 1995) along with additional visualization questions our class and professor developed to gauge how visualization is used across contexts. Results showed a strong positive correlation between VVIQ scores and visualization frequencies. There was also a positive correlation between VVIQ scores and reported vividness of dreams.

**3**

### **Title:** French-Canadian Influential Immigration to Kankakee County, IL, and the Driving Force Behind it.

**Presenter(s):** Gregg A. Blanchette

**Presentation Time:** 11:00

**Discipline:** History

**Advisor:** Prof. Jeff Kolnick

**Abstract**: Descendants of French-Canadians in Kankakee County remain an important part of the cultural fabric. With the aid of the Kankakee County French Historical Society/Museum, using primary and secondary sources, this study explains how in the mid nineteenth century Noel LeVasseur and Father Charles Chiniquy supported a seventy-year migration from Quebec to Kankakee County. Like so many immigration stories, the peoples of Quebec were pushed by economic hardships, population growth, and political changes and pulled to the Kankakee River Valley by the fertile inexpensive land and rapidly growing French-Canadian supportive population. The experience of French-Canadians mirrored that of many ethnic groups by clustering together, or what historians refer to as chain migration. This migration of French-Canadians is a prevailing aspect of Kankakee County history. Today, several thousand descendants continue to play a significant role in the area’s growth and culture.

**4**

### **Title:** The Treaty of Mendota and Traverse des Sioux 1851

**Presenter(s):** Julia Sullivan

**Presentation Time:** 11:15

**Discipline:** History

**Advisor:** Prof. Jeff Kolnick

**Abstract**: The Treaty of Mendota and the Treaty of Traverse des Sioux were both signed in 1851 between the Dakota Tribes of Minnesota and the United States government. These treaties would represent the marginalization of Native Americans being forced off their land and have the Dakota give up around thirty million acres of their land and push them onto reservations. Settlers were moving towards the Midwest and especially land in Minnesota during the 1850’s. The research will be looking at the before, during, and aftereffects of these specific treaties. Most of the time the aspects of the treaties would only benefits the government and not the Native Americans. These treaties would leave the Dakota tribes impoverished and more dependent on the government than before.

**5**

### **Title:** The 1883 Rochester Tornadoes

**Presenter(s):** Sydney Eich

**Presentation Time:** 11:30

**Discipline:** History

**Advisor:** Prof. Jeff Kolnick

**Abstract**: “The 1883 Rochester Tornadoes,” is a comprehensive look into the storm that ripped through the Rochester area of Minnesota in the late 1800s in an attempt to both chronicle the events and answer the question: Can a natural disaster change a town for the better? The paper uses old newspaper articles from the aftermath of the disaster, articles from the National Weather Service, and various books related to the subject to arrive at its conclusion. Mother Mary Alfred proposed creating a permanent hospital in Rochester in the wake of the storm and fought for it to be created, showing that even natural disasters can change a town for the better.

## Virtual Session Abstracts

Afternoon Virtual Session: Accounting, Computer Science, & History

*Zoom Link:* [https://minnstate.zoom.us/j/98616918384](https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fminnstate.zoom.us%2Fj%2F98616918384&data=05%7C01%7CAlyssa.Anderson%40smsu.edu%7C772846ddc7ea472beb4408dbe449b2cf%7C5011c7c60ab446ab9ef4fae74a921a7f%7C0%7C0%7C638354777400696372%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=ZwuxjdA6qKGUs3W3QkTcPpw5OWGcrAAZZwTavha3wKY%3D&reserved=0)

Password: URC2023

**6**

### **Title:** Paganistan and the Police

**Presenter(s):** Renata Caponi

**Presentation Time:** 2:00

**Discipline:** History

**Advisor:** Prof. Jeff Kolnick

**Abstract**: The night of August 8th, 1991, changed the direction and nature of the Twin Cities Pagan community, dubbed Paganistan, and their relationship with local law enforcement. The religious intolerance demonstrated by the police pushed the community to find solutions to keep its members safe while exercising their religious freedom. An examination of oral histories, surveys, news articles, police training manuals, and books on contemporary paganism shows a direct link between the “Satanic Panic” of the late 20th century and the fear experienced by both members of the Wiccan Church of Minnesota and the St. Paul police department when they came face to face. Efforts to avoid further conflict resulted in an unprecedented meeting between police and pagans, ending in new policies and practices for both groups. Without these events today’s community would not have been able to grow and flourish in full view of the public.

**7**

### **Title:** The Impact Covid 19 Had on the Ability for Accountants to Work Remotely

**Presenter(s):** Lacey Popowski and Shantel Quaintance

**Presentation Time:** 2:15

**Discipline:** Accounting

**Advisor:** Prof. Will Thomas

**Abstract**: COVID-19 had a profound impact on the workforce. Due to the social distancing recommendations issued by the United States government, many businesses, schools, and other public places went virtual. This opened the door for companies to realize the workforce could contribute without stepping inside a building. Accountants had an easier time working from home with most of their work done on computers and company servers accessed via a VPN. This has paved the way for ongoing teleworking opportunities for many occupations, particularly accountants.

**8**

### **Title:** Gettysburg Perception

**Presenter(s):** Brandon Ballard

**Presentation Time:** 2:45

**Discipline:** History

**Advisor:** Prof. Jeff Kolnick

**Abstract**: Ever since a young age I have been fascinated with history. Understanding how civilizations evolved to the world we have today. Being from Baltimore, Maryland, I have spent many weekends visiting Gettysburg. The Battle of Gettysburg is the biggest battle of the biggest in Americas civil war. The civil war wasn’t just a battle that shaped the United States, but changed the course of the entire world. How has Gettysburg changed over time? How is this event viewed by people from different parts of the United States, or the world? Can location, time and perception tell a different history of the same event? Something about the place has a way of presenting history that only a few locations can. What I want to do is look at the history of Gettysburg from the perspective of locals and non-locals throughout different time periods. The topic of Gettysburg has been put more ink to paper then most, and I look to use these detailed recordings to help construct my paper.

**9**

### **Title:** Cryptocurrency and its Affect on Accounting.

**Presenter(s):** Dennis Kienetz

**Presentation Time:** 3:00

**Discipline:** Accounting

**Advisor:** Prof. Will Thomas

**Abstract**: The world has gone through a big change with the prominence of cryptocurrencies. This has led to a change in how tax accountants and general accountants have had to deal with this new issue. For this presentation I used internet journals and databases to see what accountants are now focused on with regards to dealing with crypto currency. In my research I found that there are no specific GAAP guidelines that must deal with cryptocurrency. Instead, accountants are classifying them based on how they are used and what the function of them is in the current format. Although the financial accounting standards board has released a proposal on guidance involving crypto assets. Nothing has yet been done to help accountants lock down how these new items should be handled.

**10**

### **Title:** Access Control Using Radio Frequency Identification (RFID) Sensor

**Presenter(s):** Eyuel Dagne

**Presentation Time:** 3:15

**Discipline:** Computer Science

**Advisor:** Prof. Dan Kaiser

**Abstract**: This Capstone Project presents the development of a secure and efficient door lock system using Radio Frequency Identification (RFID) technology. Aimed at enhancing security in buildings and safes, the system utilizes the ELEGOO MEGA2560 R3 microcontroller, RFID-RC522 module, and Servo Motor SG90 to automate access control. The project followed a structured plan over nine weeks, resulting in a functioning prototype that enables door operation based on authorized RFID tags. Tests confirm the system accurately detects and responds to RFID tags within a 5cm range. The system architecture, designed and programmed using the Arduino IDE, includes features for visual and audio feedback upon authentication. This prototype demonstrates the practicality of RFID in security applications and offers a scalable solution for access control needs. The success of the project showcases the feasibility of RFID technology in real-world scenarios and its potential integration into modern security infrastructure.

## URC Student Recital

Fine Arts Theatre, 1:00pm

**1**

### **Work Performed:** Pocket-Size Sonata No. 2

**Composer:**  Alec Tempelton

**Performer:**  Margeaux Belanger

**Area of Study:**  Music Education

**Instructor:**  Lon Wright

**URC Project Title:**  The Musical Stylings of Pocket-Size Clarinet Sonata No. 2 Literature

**Advisor:** Dr. John Ginocchio

**2**

### **Work Performed:** Auf dem Hügel sitz ich Spähend

**Composer:**  Ludwig von Beethoven

**Performer:**  Luke Hammerschmidt

**Area of Study:**  Music Education

**Instructor:**  Hannah Overbey

**URC Project Title:**  How Beethoven Influenced the Modern Song Cycle

**Advisor:** Dr. Stephen Kingsbury

**3**

### **Work Performed:** Allegro in A minor, D 947 Lebensstürme

**Composer:**  Franz Schubert

**Performer:**  Samantha Moeller

**Area of Study:**  Music Education

**Instructor:**  Dr. Daniel Rieppel

**URC Project Title:**  “Life’s Storms” – An Examination of one of Schubert’s Piano Four-hands Masterworks

**Advisor:** Dr. Daniel Rieppel

**4**

### Work Performed: *Fleur Desséchée*

**Composer:**  Pauline Viardot

**Performer:**  Jamie Snyder

**Area of Study:**  Music Education

**Instructor:**  Hannah Overbey

**URC Project Title:**  Rising Above Barriers: Women in 19th Century Music

**Advisor:** Dr. Stephen Kingsbury

**5**

### **Work Performed:** First Sonata for Flute and Piano

**Composer:**  Bohusov Martinu

**Performer:**  Alec Ashby

**Area of Study:**  Instrumental Performance

**Instructor:**  Holly Nester

**URC Project Title:**  Stylistic and Structural Analysis of the First Movement of Bohuslav Martinu's First Flute Sonata

**Advisor:** Dr. John Ginocchio

## Poster Session Abstracts

Lower Level of the SMSU Conference Center

*Accounting, Agribusiness Management, Biology, Computer Science, History, Exercise Science, History, Hospitality Management, Management, Mathematics, Music, Philosophy, Political Science, Psychology, Sociology, Spanish, & Theatre*

**1**

### **Title:** Consolidation Worksheet

**Presenter(s):** Julie Chesley

**Presentation Time:** 9:45-11:15

**Discipline:** Accounting

**Advisor:** Prof. Will Thomas

**Abstract**: Large companies like 3M consist of multiple corporations. Consolidation worksheets allow accountants to merge multiple companies into a single corporate entity for reporting purposes. The poster shows what a consolidation sheet is. In the poster I will be explaining the five basic entries S A I D E and showing each step. Included is additional information when a business is owned by many stockholders. When observing the Consolidation Worksheet poster, you will be able to identify what a consolidation sheet is, understand when and how to use the five basic entries. S A I D E.

**2**

**Title**: The Importance of Good Bookkeeping Practices

**Presenter(s):** Claire Eckstein

**Presentation Time:** 9:45-11:15

**Discipline:** Accounting

**Advisor:** Prof. Will Thomas

**Abstract**: Good bookkeeping practices are important in all aspects of a business. In the accounting world, bookkeeping tends to be minimized and looked upon as a simple aspect when in reality it is quite important. Many different things need to be considered regarding bookkeeping and how to be good at it. Also, there are a few questions that go hand in hand with bookkeeping. Some of these questions include what it is, who does the bookkeeping and who it affects, what elements to include, what is the difference between bookkeeping and accounting, what are the benefits and best practices, and why it is important. Many areas need to be looked at and considered when it comes to bookkeeping. While it seems like such a simple process, many elements are involved that make the need for good bookkeeping practices important for each business.

**3**

### **Title:** Why a Career in Accounting

**Presenter(s):** Lily Htoo, Maija Geier

**Presentation Time:** 9:45-11:15

**Discipline:** Accounting

**Advisor:** Prof. Will Thomas

**Abstract**: This paper informs educators and students about future job opportunities and makes them aware of what they can expect as accounting graduates. Students who acquire this knowledge will gain a deep appreciation of what the future holds for accounting professionals, enabling them to better embrace their futures after or when they graduate.

This paper addresses the different employment opportunities one can obtain with an associate, bachelor's, or master's degree in accounting. As well as information on the various certifications available to accountants and the interview process. With accountants being in such high demand, students will benefit from knowing about future opportunities and a better understanding of what to expect when building a fruitful career.

**4**

### **Title:** How Management Use Coast Accounting to Make Discissions

**Presenter(s):** Brady Brosz

**Presentation Time:** 10:30-12:00

**Discipline:** Accounting

**Advisor:** Prof. Will Thomas

**Abstract**: The role of cost accounting in shaping managerial discussions and decision-making within organizations. As businesses navigate an increasingly complex and competitive landscape, the judicious use of resources and a deep understanding of cost structures are paramount. This research seeks to unravel how management leverages cost accounting as a valuable tool to facilitate informed discussions and drive effective decision-making. By systematically tracking, analyzing, and allocating costs, cost accounting equips management with the necessary insights to optimize resource allocation, enhance cost control, and strategically plan for the future. The findings of this research underscore how the integration of cost accounting data empowers managers to engage in data-driven discussions that inform choices related to pricing, product development, and resource allocation. This research illuminates the vital connection between cost accounting and informed managerial decisions, shedding light on how organizations can achieve sustainable growth and profitability through more effective decision-making.

**5**

### **Title:** Financial Accounting vs. Managerial Accounting

**Presenter(s):** Becca Funk

**Presentation Time:** 10:30-12:00

**Discipline:** Accounting

**Advisor:** Prof. Will Thomas

**Abstract**: This project provides an overview of the distinctions between financial accounting and managerial accounting, highlighting their unique purposes, audiences, and methods. Financial accounting is primarily concerned with external reporting to stakeholders, such as investors and regulatory bodies, while managerial accounting focuses on providing internal information to aid decision-making within an organization. The key differences include the types of reports generated, the timing of information distribution, the level of detail provided, and the regulatory requirements. Understanding these variances is crucial for businesses to employ both accounting methods effectively, balancing the requirements of financial transparency with the need for strategic decision support.

**6**

### **Title:** Management's use of Cost Accounting

**Presenter(s):** Jessica Jacobson

**Presentation Time:** 10:30-12:00

**Discipline:** Accounting

**Advisor:** Prof. Will Thomas

**Abstract**: Every business has an internal accounting policy and methods that allow them to have control over inventory, efficiency, and losses. One of the most common uses of internal accounting is cost accounting. This presentation summarizes the reason cost accounting has a major effect on businesses and how they operate. Cost accounting is a vital aspect of a business’ financial records. This allows the management to focus on the company’s expenses, both fixed and variable, to track costs individually or by units of production. Having this information allows managers to have a strong understanding of the business’s economic activities. Thus, cost accounting is utilized internally by management to make and influence informed decisions involved with running the business.

**7**

### **Title:** Databases in Accounting

**Presenter(s):** Nicholas Irlbeck

**Presentation Time:** 1:00-2:30

**Discipline:** Accounting

**Advisor:** Prof. Will Thomas

**Abstract**: The process of accounting has changed over the years from hand and paper to database software on computers. Handwritten transactions have a probability of containing errors, while database transactions have less margin for errors. The significance of creating relationships within the database will ensure that the data is not being manually entered multiple times but rather connected from multiple tables within the database to ensure data reliability and accuracy. For a project in the Southwest Minnesota State University Accounting Information Systems course in the spring of 2023, a database was created showing how students, faculty, and courses are thought to be connected. This process was finalized to be a good representation of how these items correlate. The purpose of this report is to explore the crucial role of how databases connect tables together, as well as the importance of the connections.

**8**

### **Title**: Communication in Auditing

**Presenter(s):** Zain Mian, Abdullahi Omar

**Presentation Time:** 2:30-4:00

**Discipline:** Accounting

**Advisor:** Prof. Will Thomas

**Abstract**: Good communication is an important requirement for auditors, as it directly impacts the reliability and impact of audit reports. Auditors need to know how to use all of the methods of communication that are available to them in order to interact with teams and customers efficiently. Auditors with good communication skills produce audit reports that are clearer, concise, and more trustworthy, which ensures financial transparency and accountability. key communication skills for auditors, include active listening, effective written and oral communication, presentation skills, and the ability to translate complex information into plain language. Auditors with these skills make better quality and impactful audit reports, which allows for improved corporate decisions, compliance with regulations, and informed decision-making. As auditors adjust to a digital, client-centric, and balanced work-life landscape, strong communication skills are essential in the current auditing profession.

**9**

### **Title**: Education in Afghanistan

**Presenter(s):** Madison Douvier and Macy Joens

**Presentation Time:** 1:00-2:30

**Discipline:** Agribusiness Management

**Advisor:** Prof. Sang Jung

**Abstract**: Afghanistan currently has one of the lowest literacy rates in the world. Many problems are present in Afghanistan that are negatively affecting the education system. Some factors that affect the literacy rate and quality of education in Afghanistan include gender inequality, poverty, financial factors of the household, war, and various geographical barriers. In order to improve the level of literacy rate in this developing country, leaders in Afghanistan will have to address these concerns and aim to minimize their effects on the education system.

**10**

**Title**: Effects of Obesity on Skeletal Muscle Contraction

**Presenter(s):** Moshood Agboola Ojora-Williams

**Presentation Time:** 9:45-11:15

**Discipline:** Biology

**Advisor:** Prof. Sandy Craner

**Abstract**: Obesity is a metabolic condition that affects more than 600 million people globally. It is a known risk factor for numerous health issues, including musculoskeletal dysfunction and heart disease. Studies have shown the effects of obesity on musculoskeletal contractions and the relationship between excess body fat and muscle function. Maffiuletti et al. (2007) examined quadriceps muscle strength and fatigue in both obese and non-obese individuals. Results showed that obese individuals exhibited lower quadriceps muscle strength, higher voluntary muscle fatigue, and a disbalance in muscle power and torque compared to non-obese individuals. Tallis et al. (2016) investigated the impact of obesity on isolated skeletal muscles using mouse models. Findings revealed a significant reduction in isometric stress, work-loop power, and fatigue resistance, with little effect of AMPK on these reductions. Both studies suggest that obesity does indeed affect muscle contraction and may contribute to the reduced functional capacity of obese individuals.

**11**

### **Title:** The Validity of Plasticity Regeneration After Spinal Cord Injury

**Presenter(s):** Josephine Lentz

**Presentation Time:** 10:30-12:00

**Discipline:** Biology

**Advisor:** Prof. Sandy Craner

**Abstract**: Nearly 500,000 individuals worldwide each year suffer a spinal cord injury, greatly affecting functionality and quality of life (Bareyre et al., 2004). The ability of the brain and spinal cord to rewire its neural circuity, making neurological adaptations to potentially improve functionality (Weidner et al., 2001) is called plasticity. The validity of plasticity regeneration after spinal cord injury has been investigated. In Bareyre et al. (2004), rats underwent a laminectomy at T8 to determine if corticospinal axons sprouted into the cervical gray matter to contact short and long propriospinal neurons. In Weidner et al. (2001) rats underwent a bilateral dorsal column transection disrupting the corticospinal tract to examine recovery-based success of pellet retrieval. Pellet retrieval was utilized to evaluate motor recovery in rats (Weidner et al., 2001). Both studies found spontaneous structural modifications of the cortical spinal system after lesions were induced, correlating to functional recovery (Bareyre et al., 2004; Weidner et al., 2001).

**12**

### **Title:** Effects of Coral Bleaching on Corallivorous Fish

**Presenter(s):** Claudia Lensing

**Presentation Time:** 1:00-2:30

**Discipline:** Biology

**Advisor:** Prof. Sandy Craner

**Abstract**: Coral bleaching is a threat to coral reef ecosystems and has become more problematic over the years. There are many fish species that rely on coral for their shelter and food. After a coral bleaching event, coral can remain bleached for weeks before their recovery or death. There is not much information about what is happening to corallivorous fish after a bleaching event. One study investigates the growth rate and settlement preference of two species of juvenile butterflyfish while restricted to healthy and bleached coral colonies. There was no significant difference in the growth of the two species and no prejudice between the healthy or bleached colonies for habitat choice. Another study investigates the feeding behavior of two coral-feeding fish species after a bleaching event. Both species increased feeding on the bleached coral following bleaching, then decreased once fully bleached. Short-term bleaching events may not have significant impacts on corallivorous fish but these fish may impact recovery of corals after bleaching events.

**13**

**Title**: Does a Pesticide-Parasite Relationship Contribute to Frog Deformities?

**Presenter(s):** Nijie Nauden

**Presentation Time:** 2:30-4:00

**Discipline:** Biology

**Advisor:** Prof. Sandy Craner

**Abstract**: Increases in amphibian limb deformities have alarmed ecologists and health experts. Frogs are essential to ecosystems, and their decline can disrupt the environmental balance. Strasburg & Boone (2021) indicates that while pesticides affect amphibian growth, they might not majorly shift host-parasite dynamics. Experiments on Northern Leopard frog exposure to pesticides and infected snails in outdoor mesocosms demonstrate that pesticides affect amphibian growth and parasites lead to tadpole deformities, pesticide concentrations may not significantly change host-parasite interactions. Kiesecker (2002) indicates limb deformities in amphibians may be linked to trematode infections and amplified by chemical contaminants from agricultural runoff. Kiesecker (2002) identified a connection between deformities and trematode infections, accentuated by contaminants from agricultural runoff. Field studies support this, with deformities prevalent near such runoffs but only if exposed to trematodes. Laboratory findings further indicate that pesticides can enhance infections by decreased immunocompetency, shedding light on amphibian declines in certain regions.

**14**

### **Title:** Taskmaster

**Presenter(s):** Jonah Nielsen

**Presentation Time:** 9:45-11:15

**Discipline:** Computer Science

**Advisor:** Prof. Dan Kaiser

**Abstract**: In today's fast-paced world, managing tasks efficiently is a challenge. Taskmaster hopes to help solve this problem. I believe that my app will offer a more concise user experience for managing tasks. Taskmaster intends to offer a user-friendly interface for creating and prioritizing tasks and notes, with the added functionality of setting deadlines. The implementation uses the .NET MAUI framework, the C# programming language, and XAML markup language. By focusing solely on streamlined task management without unnecessary features, Taskmaster aims to provide a more concise user experience. The app operates by storing data in the system file system as .txt files, enabling easy importing and exporting of tasks. Taskmaster is intended to boost productivity by providing a straightforward and efficient platform for managing tasks and notes.

**15**

### **Title:** Ocean Dominance: Naval Warfare

**Presenter(s):** Bamlak Assaye, Tyler Bliss

**Presentation Time:** 9:45-11:15

**Discipline:** Computer Science

**Advisor:** Profs. Dan Kaiser, Shushuang Man, Kourosh Mortezapour

**Abstract**: Ocean Dominance: Naval Warfare is a computer-based strategy game where a player is trying to find the computer’s ships and sink them before the computer sinks the player's ships. In this project, we are making an engaging and stimulating strategy game that is fun to play. We want the game to help players improve their strategic thinking and decision-making. To achieve this, we developed Ocean Dominance using modern game development techniques, JavaFX, Scene Builder, and user-friendly interfaces. We have created an engaging and challenging naval warfare game, that offers players an opportunity to apply their strategic thinking in a virtual battlefield.

**16**

### **Title**: Bank Management System

**Presenter(s):** Abenezer Legesse, Esrom Tadesse, Natnael Bacha

**Presentation Time:** 9:45-11:15

**Discipline:** Computer Science

**Advisor:** Profs. Dan Kaiser, Shushuang Man, Kourosh Mortezapour

**Abstract**: Bank Management System is an integrated solution designed to redefine banking operations, focusing on enhancing operational efficiency, ensuring data security, and optimizing customer experience. Developed using a combination of robust technologies, this project utilizes Node.js with the Express.js framework for backend operations, providing a scalable and high-performance foundation. The front-end interface is crafted with HTML and uses the Tailwind CSS framework with React.js for a dynamic, responsive user experience. The system's database is powered by PostgreSQL, known for its reliability and robust data management capabilities. To support proper version management and ease conflicts that arise during teamwork, the project utilizes Git and GitHub. With this blend of advanced technologies and management tools, this project hopes to deliver a banking system that meets the current demands for digital transformation and sets a new standard for future developments in the financial industry.

**17**

### **Title**: VioletMIDI: A Portable, Lightweight​ Music Composition App​

**Presenter(s):** Humza Khan

**Presentation Time:** 10:30-12:00

**Discipline:** Computer Science

**Advisor:** Prof. Dan Kaiser

**Abstract**: Composers, songwriters, and other musicians often find themselves coming up with song ideas on the go, without an effective way to save or record them. I am developing a web app to fulfill this purpose via MIDI (Musical Instrument Digital Interface), a standard for encoding musical events as information. MIDI sequencers are tools (often found in music production programs such as Logic Pro, FL Studio, and the like) that allow musicians to write music on their computers or smartphones. My capstone project, VioletMIDI, is a MIDI sequencer designed to be portable, lightweight, and user-friendly.

**18**

### **Title**: Weather Desktop App

**Presenter(s):** Michelle Diaz

**Presentation Time:** 10:30-12:00

**Discipline:** Computer Science

**Advisor:** Prof. Dan Kaiser

**Abstract**: Being able to wake up and check the weather should be easy and accurate for everyone. Using the OpenWeatherMap API, the "Weather App Desktop" is a desktop Python program that gives users access to the most recent weather data. To get the most recent weather information, users can enter a zip code or the name of the city in the program. When measuring temperature, users can select between Celsius and Fahrenheit units. A 7-day forecast, a 24-hour forecast, and the ability to retrieve weather warnings for a certain location are the three main features of the program. This program provides a useful way to obtain current and reliable weather information by integrating with the OpenWeatherMap API.

**19**

### **Title:** Culinary Coding: Developing A Curated Recipe Website Using HTML, CSS, JavaScript, SQL And PHP.

**Presenter(s):** Oyindamola Owolabi and Birkti Ayele

**Presentation Time:** 10:30-12:00

**Discipline:** Computer Science

**Advisor:** Prof. Dan Kaiser

**Abstract**: This project shows a meticulously designed recipe website, seamlessly combining culinary art with innovative web technologies. We created an interactive platform that enhances the culinary journey for a diverse user base. Users can view recipes from Eastern and Western parts of Africa, each of the recipes provided includes instructions, ingredients, supporting image and embedded instructional YouTube videos. This website utilizes HTML, CSS, JavaScript, SQL, and PHP: HTML (HyperText Markup Language) lays the foundation, structuring content and defining the site's layout. CSS (Cascading Style Sheets) enhances the visual appeal with design and formatting. JavaScript brings interactivity, enabling features like search filters and dynamic content updates. For managing and querying recipe data, SQL (Structured Query Language) is employed to create a robust database. PHP (Hypertext Preprocessor) serves as the server-side scripting language, handling user requests and database interactions.

**20**

### **Title**: Quarto

**Presenter(s):** Caleb Boyum

**Presentation Time:** 1:00-2:30

**Discipline:** Computer Science

**Advisor:** Prof. Dan Kaiser

**Abstract**: This project is an expansion of a previous project in which I made a digital version of the game Quarto, a board game published by Gigamic Games. The first version of the project was made in Java FX, so I continued to utilize the language. The original project resulted in a game that functioned for two players and only lasted for one round. This update adds a menu to allow for multiple rounds as well as an AI opponent with multiple difficulties.

**21**

### **Title:** Distributed Data Processing over a RISC-V Cluster

**Presenter(s):** Martin Olsen

**Presentation Time:** 1:00-2:30

**Discipline:** Computer Science

**Advisor:** Prof. Dan Kaiser

**Abstract**: We will create a cluster of RISC-V processors that are connected via a switch. Because RISC-V is an emerging architecture, we will focus on frameworks that require minimal interdependence between multiple ecosystems. This cluster that will perform certain basic operations including mapping, folding, and filtering over an array. The cluster will divide its work among its members, and this division of work will considerably increase the speed of the program’s execution. To accomplish this, we will utilize the cluster management software Amadeus, written in the systems programming language Rust, to organize our machines.

**22**

### **Title:** 2D Game Engine

**Presenter(s):** Hamlet Santana, Cesar Portillo

**Presentation Time:** 1:00-2:30

**Discipline:** Computer Science

**Advisor:** Prof. Dan Kaiser

**Abstract**: The 2D game engine is a capstone project focused on facilitating the creation of 2D games for developers. This project focuses on crafting a versatile and high-performance game engine using C++ in order for aspiring game developers and hobbyists to quickly enter the market. The gaming industry has been growing rapidly since its creation into the multi-billion dollar industry it is today. Our team utilized C++ and SDL libraries to build a game engine that incorporates Lua for scripting flexibility. The engine's capabilities will be showcased by creating a classic arcade-style game called "Galaga." Our approach involved establishing a sturdy core for rendering, object management, input handling, and fundamental physics. To ensure functionality across various hardware and software configurations, we conducted rigorous testing. The "Galaga" prototype confirms the engine's efficacy and versatility since it can include essential mechanics, such as movement and collision between various objects.

**23**

### **Title:** Predictive Analytics with Machine Learning

**Presenter(s):** Ali-Muhammad Nathani

**Presentation Time:** 2:30-4:00

**Discipline:** Computer Science

**Advisor:** Prof. Dan Kaiser

**Abstract**: This study delves into the real world applications of machine learning in predictive analytics. We explore how machine learning algorithms are effectively utilized across industries, including healthcare, finance and e-commerce. Through case studies and data analysis, we highlight the transformative impact of machine learning on predictive accuracy, efficiency and data-driven decision making. These findings carry significant implications for organizations seeking to harness machine learning's potential for improved forecasting and optimization. This research serves as a window into the current landscape and promising future of machine learning in practical predictive analytics.

**24**

### **Title:** Building a User Friendly Hospital Website

**Presenter(s):** Kirubel Kebede

**Presentation Time:** 2:30-4:00

**Discipline:** Computer Science

**Advisor:** Prof. Dan Kaiser

**Abstract**: This project shows a User-Friendly Hospital Website. The project is a comprehensive web development effort aimed at creating a dynamic and multifunctional online platform for a healthcare institution. This project is driven by the need to harness the power of the digital age to enhance patient care and facilitate seamless interactions between patients and the hospital.

The website is designed with a user-centric approach, providing an intuitive and aesthetically pleasing interface that allows users to effortlessly access critical information. Key functionalities include the ability to explore the hospital's services, schedule appointments, and research the profiles of physicians and available facilities.

The focus is on effective time management and ensuring compatibility across various devices, while also considering the adoption of modern web technologies. I used HTML, CSS, Bootstrap, and JavaScript in this project.

**25**

### **Title:** Improved Point of Sale System

**Presenter(s):** Ellie Anselment

**Presentation Time:** 2:30-4:00

**Discipline:** Computer Science

**Advisor:** Prof. Dan Kaiser

**Abstract**: N/A

**26**

### **Title:** CalBuddy- College Time Made Easy

**Presenter(s):** Ble Michela N'Guessan, Franklin Roa Guerrero, Frederick Fermin Guzman.

**Presentation Time:** 2:30-4:00

**Discipline:** Computer Science

**Advisor:** Profs. Dan Kaiser, Shushuang Man, Kourosh Mortezapour

**Abstract**: Organization and planning are critical skills to keep track of what truly matters. In college, it is vital to put into practice these aptitudes because it represents one of the busiest stages of our lives. The CalBuddy App is here to help with that. It is a centralized place that automatically collects relevant data so students act upon it, reducing the burden of manually tracking all events. To achieve this, the app leverages multiple APIs that connect to different organizations on campus using technologies like Amazon Web Services for the back end, Angular & Ionic Framework for the front end, NoSQL databases for storage, and other tools. For project management, we implemented the Agile Methodology with JIRA. We also used Slack for communication and Notion for documentation. The result is a centralized mobile app to track personal and college events. At the same time, the application promotes planning and organizational skills.

**27**

### **Title**: Development of Low-calorie, Nutrient Rich Edamame Snack Chips for Commercialization

**Presenter(s):** Evan Steinhauser, Cameron Peterson, Aiden Engstrom, Martin Kochis, Robin Clark

**Presentation Time:** 1:00-2:30

**Discipline:** Culinology

**Advisor:** Prof. Soma Mukherjee

**Abstract**: Edamame is a nutrient rich bean. There is a growing demand for edamame in the US facing a challenge because the edamame products are minimally familiar to consumers. Chips were made from frozen fresh edamame (dried) flour incorporated with vegetables (carrot and spinach). The dough was optimized for preparation for the amount of baking powder (0 to 2.5%), water content for making dough (30 to 50%), the thickness of dough sheet (0.75 to 2.25 mm) and baking temperature (150 to 180°C) and time (6 to 15 min). The prepared chips were evaluated on the internal taste testing as well as physical analysis for water activity, moisture content, color, texture, and puffiness. This snack chip production recipe and associated technology will be used to educate local farmers in a mission to increase consumption of edamame.

**28**

### **Title:** Comparison of Five Different Body Fat Percentage Methods in College Students

**Presenter(s):** Davis Moseng, Sammie Kling, Taner Erdogan

**Presentation Time:** 2:30-4:00

**Discipline:** Exercise Science

**Advisor:** Prof. Taner Erdogan

**Abstract**: Accurate measurement of body fat percentage is crucial for health assessment, sports science, and nutritional studies. Various methods are available, each with their own advantages and limitations. This study aims to compare the five different methods for measuring body fat percentage. A total of 10 healthy subjects with age ranges 19 to 25 years participated in the study. Body fat percentage was assessed by using Hand-Held Bioelectrical Impedance Analysis (BIA), BIA scale, Skinfold measurements, and Underwater Weighing with (considered a gold standard) and without head submersion. Since data collection for this study is still in progress, no results or statistical analyses are provided. A repeated measures ANOVA will be utilized to evaluate the differences in body fat percentage measurements obtained from five different methods. To further investigate the specific pairwise differences between methods, Tukey's Honest Significant Difference post-hoc test will be employed.

**29**

### **Title**: Lincoln County Seat

**Presenter(s):** Benjamin Engels

**Presentation Time:** 9:45-11:15

**Discipline:** History

**Advisor:** Prof. Jeff Kolnick

**Abstract**: The county seat of Lincoln County Minnesota was moved to Ivanhoe after a contested election. The election was called for by the board of County Commissioners after the citizens of Ivanhoe called for it in 1901. The election put them at odds against the town of Lake Benton, and after Ivanhoe won Lake Benton would successfully contest the election winning in a state supreme court decision in 1903. They were able to win due Lake Benton lacking proper Notice of the election. This did not last, as the courts ordered another election after this lawsuit wherein Ivanhoe would win again in 1904. This would be the current resting place of the county seat. The research was done by looking at county histories, records, newspapers and other secondary sources. It is important because it shows how county seat fights played out and what resources were used in these fights.

**30**

### **Title:** “Life’s Storms” – An Examination of one of Schubert’s Piano Four-hands Masterworks

**Presenter(s):** Samantha Moeller

**Presentation Time:** 9:45-11:15

**Discipline:** Music

**Advisor:** Prof. Daniel Rieppel

**Abstract**: Franz Schubert wrote over 30 works for piano four hands. At the time of his composing, piano duet was the most common way that people heard new music, including symphonies. More people could be exposed to great music of various genres due to the domestication of the piano, which only required two proficient pianists. Four of Schubert’s greatest works for piano duet include Sonata in C Major (Grand Duo), Allegro in A minor (Lebensstürme), Rondo in A Major, and the F minor Fantasy. Of particular interest in the Allegro in A minor is its sonata-rondo form and its many examples of dactylic rhythm, a device Schubert often used in his compositions (most notably in his virtuosic “Waderer” Fantasy). The Lebensstürme represents one of the greatest examples of Schubert’s lifelong interest in piano duet music.

**31**

### **Title:** The Musical Stylings of Pocket-Size Clarinet Sonata No. 2

**Presenter(s):** Margeaux Belanger

**Presentation Time:** 9:45-11:15

**Discipline:** Music

**Advisor:** Prof. John Ginocchio

**Abstract**: The music we listen to contains many components that convey different meanings. In Pocket-Size Clarinet Sonata No.2, Movement 1 Moderato (and mellow), Alec Templeton employs different elements to convey a relaxed atmosphere. The composer uses elongated phrases, triplet patterns, and dynamic contrast throughout the piece. He also incorporates techniques such as smears and sequencing to give the piece a more melancholy feel. This project focuses on these musical concepts contained within the first movement of the sonata that elaborate on a mellow setting.

**32**

### **Title:** Rising Above Barriers: Women in 19th Century Music

**Presenter(s):** Jamie Snyder

**Presentation Time:** 9:45-11:15

**Discipline:** Music

**Advisor:** Prof. John Ginocchio

**Abstract**: Women composers and performers in the 19th century faced many obstacles to success. The societal norms and standards were unfairly skewed towards men. Pauline Viardot beat many odds and became a renowned composer and performer alike. The piece Fleur Desséchée exhibits her expertise in composing and teaching aside from her fruitful career as an opera singer. Viardot was afforded the opportunity of having a professional tenor as a father and opera singer as a mother. She had countless connections in the music world, which is probably the only reason we have access to so much of her music today. This piece was most likely created as an exercise for Pauline’s students, as her voice broke during her opera career, and she became a dedicated teacher and composer. Aside from Viardot, there were several other female composers including Clara Schumann and Fanny Mendelssohn who found success despite the odds.

**33**

### **Title**: How Beethoven Influenced the Modern Song Cycle

**Presenter(s):** Luke Hammerschmidt

**Presentation Time:** 10:30-12:00

**Discipline:** Music

**Advisor:** Prof. Stephen Kingsbury

**Abstract**: The song cycle has been a staple for vocal music for a long time, and many are not aware of its impact on art and popular music. Such pieces are still performed by many, from high school and college students to professional singers. The song cycles that I analyzed are An Die Ferne Geliebte being the focus as well as analyzing the components that are also found in other song cycles such as Winterreise and Dichterliebe. This report delves into the background of the piece and the elements and ideas that influenced Beethoven to write An Die Ferne Geliebte and how it influenced similar works from composers such as Franz Schubert and Robert Schumann to Ralph Vaughan Williams and Maurice Faure. The overall findings show that musical and thematic elements found in An Die Ferne Geliebte are found in the successors as well as contextual elements.

**34**

### **Title:** Stylistic and Structural Analysis of the First Movement of Bohuslav Martinu's First Flute Sonata

**Presenter(s):** Alec Ashby

**Presentation Time:** 2:30-4:00

**Discipline:** Music

**Advisor:** Prof. John Ginocchio

**Abstract**: Bohuslav Martinů (1890-1959) was a composer from present-day Czechia who invented his own style of music. Composing more than 400 works, he worked to incorporate a number of different compositional styles stemming from his experiences and exposure to other works. His style is a unique take on Neoclassicism, the most popular compositional style between World Wars One and Two. Neoclassicism draws inspiration from Classical era music: emotional restraint, balance, order, and clarity. Martinu’s version of Neoclassicism included elements of Classicism, jazz, and Czech folk music, while adding in “a very personal sense of rhythm”. While discovering potential research topics about the first movement about Martinů’s Flute Sonata, I had hoped to find elements of Czech folk, jazz, and polytonality; another technique Martinů employs in other works. While unsuccessful in locating polytonality, there are plenty of examples of jazz and Classical music as well as Martinů’s unique and unconventional rhythm.

**35**

### **Title:** Examining the State of Nature

**Presenter(s):** James Gully

**Presentation Time:** 9:45-11:15

**Discipline:** Philosophy

**Advisor:** Prof. Brett Gaul

**Abstract**: Thomas Hobbes argues that humans, when not restrained by government, exist in a state of nature. He describes life in this state as “solitary, poor, nasty, brutish and short” and declares the state of nature to be tantamount to a “state of war” of “every one against every one.” The validity of these assertions is examined from the perspective of evolutionary biology and game theory. Evolutionary biology demonstrates that “hawk” behavior is not an evolutionary stable strategy, because it can be invaded by individuals exhibiting “dove” behavior. Analyses of iterated prisoner’s dilemma scenarios demonstrate that it is advantageous to cooperate, rather than betray. Taken together, they disprove the assertion that a state of nature necessarily implies a state of war.

**36**

### **Title:** What Should Human Law Do?

**Presenter(s):** Ashton Ayres

**Presentation Time:** 1:00-2:30

**Discipline:** Philosophy

**Advisor:** Prof. Brett Gaul

**Abstract**: Over the course of history, humans developed societies within which there was developed agreed upon ways of treating each other. This is where the concept of human law was developed. A couple Philosophers who have entertained this topic are Thomas Aquinas, Thomas Hobbes, and John Locke, each developing their own reasoning for its inception, its goals, and how it should be enforced. The goal of this study is to explain the differences and inconsistencies between these philosophers and to develop a personal theory of human law.

**37**

### **Title:** Communities Without Police: The Impact and Result

**Presenter(s):** Ashton Ayres

**Presentation Time:** 9:45-11:15

**Discipline:** Political Science

**Advisor:** Prof. David Sturrock

**Abstract**: There has been a rise in police department closures that has become evident in communities throughout the United States. Many of them are closed within smaller communities in Greater Minnesota. Three interviews with public officials were conducted to get a better understanding of the scope of this issue and how it may affect other communities. These closures have been spurred by limitations in manpower caused by three different sources: COVID pandemic, anti-police rhetoric, and municipal budget restrictions. The goals of this study are to explain this phenomenon and to explore the ways that this affects different communities.

**38**

### **Title:** Policy Implications on the Increase of Missing and Murdered Indigenous Women in Minnesota

**Presenter(s):** Addy Wolvaum

**Presentation Time:** 10:30-12:00

**Discipline:** Political Science

**Advisor:** Prof. David Sturrock

**Abstract**: The increase of Missing and Murdered Indigenous Women, girls and two-spirit peoples is a crisis Minnesota has been facing for many years. The history of colonization, past policies and more recent policies have contributed to this rise of crime and violence against this demographic, but there are some more recent policies and initiatives that have been implemented with the intent of reducing this violence and the crimes against Indigenous women, girls and two-spirit people. This research project looks at the negative and positive impacts Minnesota’s government has had on Indigenous people and the increase of violence against their women, girls and two-spirit people while explaining the historical background that has played a part in creating and worsening this crisis.

**39**

### **Title**: Can the “Treat and Reduce Obesity Act” cut obesity levels in the United States?

**Presenter(s):** Moshood Agboola Ojora-Williams

**Presentation Time:** 1:00-2:30

**Discipline:** Political Science

**Advisor:** Prof. David Sturrock

**Abstract**: The United States currently faces a national obesity epidemic with over 114.8 million people being either obese or overweight, according to the CDC (2023). Lawmakers have introduced the Treat and Prevent Obesity Act (TROA), a significant initiative designed to combat the nation’s obesity problem. This research provides a concise overview of TROA’s goals, development, and significance. TROA is a legislative solution to make obesity treatments more accessible, promote prevention, and allocate resources for research and education programs. Current healthcare costs, and the need to treat underlying health conditions caused by obesity make it imperative to address the health, economic and security consequences of this epidemic. This research also focused on the legislative process, key actors involved, and potential impacts of TROA on healthcare, community, and non-governmental organizations. TROA would play an essential role in addressing obesity as well as promoting a healthier future for the United States.

**40**

### **Title:** Economic Impact of Municipal Liquor Monopolies on Localities in Southwest Minnesota

**Presenter(s):** Hunter Smith

**Presentation Time:** 1:00-2:30

**Discipline:** Political Science

**Advisor:** Prof. David Sturrock

**Abstract**: After Prohibition, the Minnesota Legislature granted cities with a population of under 10,000 full control of liquor sales in their city, creating municipal liquor monopolies. There are 15 cities in the Southwest Minnesota EDR with municipal liquor monopolies. This study investigates the impact that municipal liquor operations have on the general funds for the localities of southwest Minnesota. Inquiries were sent to the 15 city governments to find how much money municipal liquor operations contribute to their city budget and if there are any specific areas that revenues from municipal liquor operations fund. Results found that municipal liquor operations finance on average 3% of city general funds and nine cities use municipal liquor operations to aid in financing their budget; chiefly to purchase new equipment or offset their tax levy. Two cities lose money from municipal liquor operations in southwest Minnesota.

**41**

### **Title:** Solutions for Rural Childcare: Building from the Ground Up

**Presenter(s):** Houa She Yang

**Presentation Time:** 1:00-2:30

**Discipline:** Political Science

**Advisor:** Prof. David Sturrock

**Abstract**: My research addresses the pressing issue of childcare availability and accessibility in Greater Minnesota. Parents, caregivers, and policymakers are concerned about the scarcity of affordable, high-quality childcare services in the region. I aim to bridge the practical gap by providing data and insights into the state of childcare in this specific area. The mixed-methods approach included interviews and focus group discussions with stakeholders in the community. The findings reveal a huge childcare gap, particularly in rural areas.

Many families struggle to find suitable arrangements, hindering work-life balance, with financial burdens of childcare further inhibiting workforce participation. Collaboration among local authorities, community organizations, and childcare providers is essential to address these challenges. My study underscores the need for increased support and investment in childcare services to promote workforce participation and economic growth.

**42**

### **Title:** The Greater Housing Problem of Greater Minnesota

**Presenter(s):** Stephen Zimmer

**Presentation Time:** 2:30-4:00

**Discipline:** Political Science

**Advisor:** Prof. David Sturrock

**Abstract**: Our parents always told us that purchasing a house will be the most expensive purchase of our lives, but did they anticipate the housing market to be this difficult? Within the past couple of years, it has become increasingly hard to find housing in Greater Minnesota. As economic development continues to bloom across the state, cities struggle to keep up with the demand for housing that is needed for their workforce. Currently, there is a shortage of 95,000 available houses in Minnesota. Different factors that go into building houses such as land acquisition, skilled labor, materials, and financing have made it increasingly difficult for Minnesota to keep up with housing demands not only within its communities but compared to its neighboring states. This presentation examines the different issues Greater Minnesota faces with housing, as well as potential solutions to help solve housing problems within Greater Minnesota.

**43**

### **Title:** Intellectual Property Versus Farmers' Right to Repair

**Presenter(s):** Samuel Lund

**Presentation Time:** 2:30-4:00

**Discipline:** Political Science

**Advisor:** Prof. David Sturrock

**Abstract**: The tension between intellectual property rights and farmers' right to repair has emerged as a critical issue in the modern agricultural landscape. Intellectual property laws protect the manufacturer’s ability to fostering innovation and economic incentives in agriculture. Whereas farmers assert their right to repair and modify essential machinery, seek autonomy and cost-effective solutions in an ever-evolving industry. In order to collect the proper information, multiple scholarly journals, literature review articles, and Minnesota agriculture organizational advocacy polices were examined. I identified state and federal legislation, and conducted interviews which included local farmers, RDL and Associates’ Representatives, and local state senators. The debate circulating around intellectual property versus farmers rights to repair, brings up major concerns of financial costs and autonomy versus manufacture property rights and liability issues. The goal of the study is to identify pros and cons of both sides of this debate, in order to outline potential solutions.

**44**

### **Title**: The Effects of Divided Attention on Cognitive Control

**Presenter(s):** Megan Anspach

**Presentation Time:** 10:30-12:00

**Discipline:** Psychology

**Advisor:** Prof. Benjamin Anderson

**Abstract**: Controlled memory involves the conscious effort to retrieve information, while automatic memory can be described as involuntary. We conducted a replication and extension of the Anderson et al. (2011) study which focused on how distracting information impacts our memory and leads to more involuntary recognition. The current study implemented a 2 (Target: old/new) x 2(Distractor: old/new) x 2(Cue: P/W) x 2(Condition: blocked/mixed) design which included 32 SMSU students' participants. After completing 8 study/test runs, participants completed a Trails task which is thought to measure executive functioning. Our goal was to see the impact of distracting information on cognitive control during recognition memory. We also expected to find that during the mixed condition there was an increase in involuntary recognition compared to the blocked condition. Results revealed an overall Memory Stroop effect across both mixed and blocked conditions but no interaction.

**45**

### **Title:** The Effect of Dynamic Visual Noise on Memory for Concrete vs. Abstract Information

**Presenter(s):** Aislinn Perkins, Abby Boxrud

**Presentation Time:** 1:00-2:30

**Discipline:** Psychology

**Advisor:** Prof. Benjamin Anderson

**Abstract**: The purpose of our study was to replicate the concreteness effect and determine the effect of Dynamic Visual Noise (DVN) on this concept. The concreteness effect states that concrete words are easier to remember than abstract words. Dual-coding theory suggests that concrete words are more readily represented by both visual and verbal processes in the brain. We recruited SMSU students to complete a visualization survey and a within-subjects experiment. Participants were exposed to both conditions (DVN vs. No DVN), concurrent with presentation of abstract and concrete words. They were then tested on their ability to recall those words. We found the concreteness effect was significant, but the interaction between concreteness and DVN was not present. This finding does not support Dual-coding theory but does replicate the concreteness effect.

**46**

### **Title:** Social Comparison, Gender, and Personality: Gender Differences in Upward and Downward Social Comparison

**Presenter(s):** Macie Langstraat

**Presentation Time:** 2:30-4:00

**Discipline:** Psychology

**Advisor:** Prof. Laura Koenig

**Abstract**: Social comparison is an ever-present phenomenon in daily life. In this study, we are investigating the relationship between social comparison and gender, examining both upward and downward comparisons. Upward comparison occurs when one compares themselves to others who they believe are superior and downward occurs when one compares themselves to those who they believe to be inferior. After doing some background research, we were able to create and distribute a Qualtrics online survey across various classes for students to participate in. We developed an overall measure of upward and downward comparison and a scale assessing seven different domains of comparison (e.g., athletic performance, social comparison, career aspirations) in the upward and downward direction. We are also exploring the relationship between social comparison and other personality and mindset factors. Our preliminary analyses on the data show that participants do more upward than downward comparison and gender differences seem to be minimal.

**47**

### **Title:** Vividness of Visual Imagery and the Frequency of Creating Mental Images

**Presenter(s):** Jessica Kruk, Stacey Engelkes, and Haylee Johnson

**Presentation Time:** 2:30-4:00

**Discipline:** Psychology

**Advisor:** Prof. Benjamin Anderson

**Abstract**: Mental Imagery has been described as ‘seeing with the mind’. The VVIQ was designed to measure how vividly someone can see these mental images within the mind. The presented study focuses on the use of the VVIQ scores and how it relates to the frequency of visualization in individuals as well as the vividness while dreaming. Participants in this study completed a survey where they visualized different scenarios and rated how clear and vivid that mental image. Then the survey asked questions related to how often participants visualize while performing certain tasks. Our hypothesis was that VVIQ scores would correlate positively with the frequency of visualization in different scenarios. We hypothesized there is a positive correlation between the VVIQ scores and vividness in dreams. Results revealed strong positive correlations between the VVIQ score and visualization frequency and between VVIQ scores and vividness of dreams.

**48**

### **Title:** Barriers to Using the Mustang Market

**Presenter(s):** Kylie Thelen, Mykal Barker, Haley Schultz

**Presentation Time:** 10:30-12:00

**Discipline:** Sociology

**Advisor:** Prof. Cindy Aamlid

**Abstract**: There are many barriers to using a food pantry, even on a college campus. The purpose of this research project is to explore the students' perspective of barriers to using the SMSU food pantry called the Mustang Market. A survey was distributed to the on-campus students at SMSU. The results indicate that there are several barriers to using the Mustang Market. Using the information collected, we hope to eliminate barriers to using the Mustang Market as well as expand it to provide for more students.

**49**

### **Title:** The Status of Food Security

**Presenter(s):** Addy Wolbaum, Joe Buelow, Jordon Peterson

**Presentation Time:** 1:00-2:30

**Discipline:** Sociology

**Advisor:** Prof. Cindy Aamlid

**Abstract**: The United States Department of Agriculture defines food insecurity as a lack of consistent access to enough food for every person in a household to live an active, healthy life - either temporary or long term. The lack of food security is a problem that can impact everyone, especially college students. By administering the survey to Southwest Minnesota State University students on campus, we will have an understanding of how critical the status of food security is on our campus. Based on the findings, the Mustang Market will be able to assess the current need for food security and work accordingly.

**50**

### **Title:** Conclusions and Suggestions Surrounding the Use of the Mustang Market

**Presenter(s):** Gary Barnes, Zander Van Noordwyk, Drew Middendorf

**Presentation Time:** 1:00-2:30

**Discipline:** Sociology

**Advisor:** Prof. Cindy Aamlid

**Abstract**: Food pantries on campuses across the United States are incredibly important for college students' health and wellness. This research project surveyed students on the SMSU campus about the Mustang Market food pantry. The Mustang Market is a food shelf here on campus. We asked questions involving whether students felt their basic food needs were met and suggestions students had for making the Mustang Market more accessible. The results will summarize ideas from the students and from our class who have worked in the Market this semester. We hope to accomplish an understanding of the use, necessity, and opportunity created by the Mustang Market.

**51**

### **Title:** Awareness and Use of the Mustang Market by SMSU Campus Students

**Presenter(s):** Brianna Chatterton Jessica Bohl Morgan Warner

**Presentation Time:** 2:30-4:00

**Discipline:** Sociology

**Advisor:** Prof. Cindy Aamlid

**Abstract**: It is impossible for individuals to use resources meant for them if there is no awareness of their existence. The purpose of this research project is to determine if SMSU students are aware of the food pantry on campus and if they are using it. Our class developed on online survey that asked students a series of questions about how often they have used the market and their level of awareness. The Mustang Market needs more than people knowing it is there, since it is meant to help all students on campus. The results will be shared at the URC.

**52**

### **Title**: The Beginning of Special Effects Makeup

**Presenter(s):** Brooke Burns

**Presentation Time:** 9:45-11:15

**Discipline:** Theatre

**Advisor:** Prof. Sheila Tabaka

**Abstract**: Special effects makeup has become a crucial part of movies today. With the development of life casting, prosthetics, makeup shading, and fake bodily fluids films are able to achieve realistic and immersiveexperience for their viewers. Starting in the mid 1920s, Lon Chaney is one of the first examples seen of special effects makeup in film. He created looks for the Hunchback of Notre Dame and the Phantom of the Opera by using fish skins and wigs. The Wizard of Oz was an early example of a film using prosthetics and makeup to bring the characters to life. As cameras and film equipment develops special effects makeup needs to become more realistic. Knowing where special effects makeup started and the steps it took to get where it is today is crucial in developing the skill more by combining the knowledge of old techniques and the experimentation of new techniques.

**53**

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For more information contact conference coordinators:

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### **Title:** The Horrors of Unsafe Makeup

**Presenter(s):** Priscilla Muehr

**Presentation Time:** 10:30-12:00

**Discipline:** Theatre

**Advisor:** Prof. Sheila Tabaka

**Abstract**: We should be thankful for current makeup. As an actor, I'm so glad that we have newer, safer makeup. Unsafe makeup was a serious problem back then. Lots of people died or nearly died due to the contents in their makeup. I researched this because I care about the stuff I'm putting on my face as well as others, and I want everything to be safe as possible. I read some articles involving unsafe makeup back then, the actors of the tin man in "Wizard of Oz" really struggled with this issue. I learned that makeup can be a really serious problem and that many accomodations had to be made for it to be safe. I am so happy our makeup is so much safer now, because as an actor I would not want to nearly die due to the unsafe materials in makeup products that are used for productions.

**54**

### **Title:** Scratches and Bruises

**Presenter(s):** Raquel Matias

**Presentation Time:** 10:30-12:00

**Discipline:** Theatre

**Advisor:** Prof. Sheila Tabaka

**Abstract**: To make realistic injuries for the stage one must have a good understanding of the process in which these makeup looks are created. By layering different colors such as red, yellow, purple, and sometimes black you can create bruises. To create scratches, you would have to use a small stipple brush to create the irritation that scratches create along with different shades of pink and red to put emphasis on the point of irritation. Figuring out how old the bruises or scratches are is the most important part of the whole process. Learning what stage your injury is at can determine what techniques and colors of makeup you use to accomplish your look.

**55**

### **Title:** Contouring The Face

**Presenter(s):** Laura Bradley

**Presentation Time:** 1:00-2:30

**Discipline:** Theatre

**Advisor:** Prof. Sheila Tabaka

**Abstract**: Everyone's face comes with different highlights and shadows. Focusing on the technique and bone structure of the face.

**Visual representation of the SMSU Campus**