Graduate Research

S Y M P O S I U M

Showcasing Scholarly
& Creative Works

Idaho State University

IS Idaho State University

March 15, 2023

EVENT PROGRAM

Idaho State University's Land Acknowledgment Statement

Acknowledging Native lands is an important way to honor and respect Indigenous peoples and their traditional territories. The land on which Idaho State University's Pocatello campus sits is within the original Fort Hall Reservation boundaries and is the traditional and ancestral home of the Shoshone and Bannock peoples. We acknowledge the Fort Hall Shoshone and Bannock peoples, their elders past and present, their future generations, and all Indigenous peoples, including those upon whose land the University is located. We offer gratitude for the land itself and the original caretakers of it.

As a public research university, it is our ongoing commitment and responsibility to teach accurate histories of the regional Indigenous people and of our institutional relationship with them. It is our commitment to the Shoshone-Bannock Tribes and to ISU's citizens that we will collaborate on future educational discourse and activities in our communities.

Graduate Research
S Y M P O S I U M

Showcasing Scholarly
& Creative Works

Idaho State University

Table of Contents

Letter from the Dean of the Graduate School

Adam Bradford

Acting Provost | Dean of the Graduate School

Thank you for attending the 2023 Idaho State University Graduate Research Symposium! The GRS is an important part of a graduate student's progression from student to scholar, marking the first time that many of them are presenting their personal research, scholarship or creative activity to the public. In doing so, these students are giving us a glimpse into the future – as the new technologies, knowledge, clinical practices, and creative works they are developing revise our understanding of the natural world, empower us to make better decisions, build our capacity to engage with one another, and improve our collective lives. In small, subtle, but important ways, the knowledge of these budding scholars pushes forward the boundaries of what we know and what we can do, and witnessing it in this light makes their contributions all the more thrilling and valuable.

I hope as you peruse the poster gallery today or listen to students' oral presentations that you will take the opportunity to engage in copious dialogue with them. If you do, you will undoubtedly be struck, as I frequently am, by the intelligence, eagerness, and ambition of the scholars you encounter. One of the great privileges afforded to me, as Dean of the Graduate School, is the opportunity to witness the dedication, passion, and inventiveness of our graduate students as they pursue their research interests, develop clinical expertise, or hone their creative practice. To immerse yourself in their intellectual or creative world and to hear them explain their interests, their accomplishments, and their goals for future work never fails to inspire me, as it will you. Such inspiration breeds hope – as you begin to realize just how large the scope is of talented people working to effect positive change in our world.

Enjoy the Symposium!

Letter from Associate Dean of the Graduate School

Tracy Collum

Associate Dean of the Graduate School

Welcome to our 9th Annual Graduate Research Symposium!

As I reflect over the years watching several hundred graduate students participate in our annual research symposium, I am astounded at the aptitude and perseverance our students have shown. The research, synopses, outcomes, and reviews displayed have broadened the horizons of every attendee each year.

This year, we revamped our graduate students' research opportunities to host a large research event in both the fall (3-Minute Thesis) and the spring (Graduate Research Symposium). This restructure has allowed even more students to participate and share their work in various ways, without the pressure of preparing multiple presentations for the same event. Regardless of your topical interests, I know you will walk about from the symposium with new knowledge.

Grad Bengals, you renew everyone's energy for information. Thank you for taking part in this day designed for you! Be sure to tag us on your social media to let the rest of the world know what a great day you are having!

Agenda

Wednesday, March 15, 2023

Pond Student Union Building
1080 S 5th Avenue, Pocatello, ID

11:45 a.m.	**Presenter Check-in**	Ballroom, PSUB
12:00 p.m.	**Welcome Luncheon** Dr. Adam Bradford Acting Provost | Dean of the Graduate School	Ballroom, PSUB
1:10 p.m.	**Oral Presentations**	Third Floor, PSUB

Oral Presentation Categories	**Room**
Biological & Natural Sciences	North Fork
Engineering, Physical & Mathematical Sciences	North Fork
Business, Economics & Public Administration	Sargent Boardroom
Education, Learning & Training	Sargent Boardroom
Health, Nutrition & Clinical Sciences	South Fork
Humanities, Behavioral & Social Sciences	Clearwater

3:15 p.m.	**Poster Presentations & Creative Works Display**	Ballroom, PSUB
5:00 p.m.	**Greeting** Dr. Adam Bradford Acting Provost | Dean of the Graduate School	Ballroom, PSUB
5:10 p.m.	**Keynote Speaker** Dr. Robert Lion Associate Professor of Human Resource Development	Ballroom, PSUB
6:00 p.m.	**Awards Ceremony** Hors d'oeuvres and Libations	Ballroom, PSUB

Oral Presentations
3rd Floor, PSUB

Biological & Natural Sciences
North Fork

Azhdarchid pterosaur diversity in Late Cretaceous North America
Henry Thomas

Modeling the Effects of Sodium Ion Channel Mutations in Skeletal Muscle Fibers
Colleen Murray

Developing a radioimmunotherapy for Synovial sarcoma
Jeffrey Okojie

Calcium rescue of pneumococcal manganese sensitive cells is not via reduction of intracellular manganese levels
Reuben Opoku

Asbestos exposure alters the inflammation response in an acute exposure mouse model
Ujjwal Adhikari

Effects of B4GALNT1 expression on metastatic phenotype and response to treatment in osteosarcoma cell lines
Fatemeh Zareihajiabadi

Engineering, Physical & Mathematical Sciences
North Fork

Insights into Gender-wise Contributions in Software Development Projects
Arifa Islam Champa

Rock Glacier Distribution and Implications for Alpine Hydrology in the Northern Rocky Mountains
Olivia Stanley

Business, Economics & Public Administration
Sargent Boardroom

Empirical Analysis of Triple Bottom Line Reporting in The Banking Sector and its Determinants: Focus on Environmental Issues
Rian Binte Kamal

Good Friends in Adverse Places: Close Confidants in Bad Workplaces
Joshua Luker

Increasing Leader Member Exchange through Social Exchange Theory
Madison Mancini

Education, Learning & Training
Sargent Boardroom

The history of Games in Education
Danielle Fernandez

Game On! Integrating gamification to enhance Doctor of Physical Therapy (DPT) education
Jensen Haigh

Effectively Using ChatGPT in Education In Accordance with the Technology Consumer or Producer (TCoP) Model
Reed Hepler

Health, Nutrition & Clinical Sciences
South Fork

COVID-19 Taste/Smell Changes: Impact on Dietary Intake & Potential Coping Strategies
Chelsea Cobabe

Cervical Cancer and HPV Vaccination: The Disparity in Latinas
Kayler Detmer

Renin-Angiotensin System Components and Arachidonic Acid Metabolites as Biomarkers of COVID-19
Biwash Ghimire

Psychotherapy Help-seeking Intentions and Preferences among K-12 Teachers in Taiwan
Ailun Li

Improving Anti-Arthritic Effects of Novokinin through Bisphosphonate Conjugation
Arina Ranjit

Examining the Role of Quality Improvement and the ECHO Model to Increase Rates of Pediatric Autism Screening in Idaho
Kathleen Rodgers

Impact of Curriculum on Knowledge and Attitudes Toward Infectious Diseases Among Undergraduate Students at a Public University in The Mountain West Region
Aysha Zahidie

Humanities, Behavioral & Social Sciences
Clearwater

**Factors Influencing Prehistoric Obsidian Procurement and Use
in and around the Snake River Plain, Idaho**
Pamela Pascali

The QAnon Infection: How Families Have Reacted to Members' Conspiratorial Identities
Jacob Harris

The Effect of Gender in Journalism Beats
Kaitlyn Hart

**Breaking Censorship During the Spanish Literary Golden Age: The Case of Feminine
Interests in the Works of Maria de Zayas, Ana Caro de Mallen and Sor Juana Ines de la
Cruz**
Francis Whitfill

**The impact of self-critical perfectionism on mental health outcomes during the COVID-19
pandemic**
Dawn Amos

Wolves in Comics
Brianna Lords

**The Umbrella of Religious Freedom: The Impact of Support for Religious Freedom on
Public Opinion Toward Female Genital Mutilation / Cutting (FGM/C)**
Abeer Alqurashi

Creative Works

Ballroom, 2nd Floor, PSUB

Creative Works Display

Idaho's Obsidian History: Tools and Technology, a learning module for 4th grade
Pamela Pascali

Poster Presentations

Ballroom, 2nd Floor, PSUB

Business, Economics & Public Administration

#5   **Family Relationship and Financial Performance**
Ashok Chakraborty

#21   **Empirical Analysis of Triple Bottom Line Reporting in The Banking Sector and its Determinants: Focus on Environmental Issues**
Rian Binte Kamal

#42   **Increasing Leader Member Exchange through Social Exchange Theory**
Madison Mancini

Education, Learning & Training

#10   **An Empirical Analysis to Examine the Disparate Impact of Distinct Background Music on Gameplay Experience**
Rifat Ara Tasnim

#35   **Examining Overtraining Syndrome within College Esports**
Tyler Moerer

Biological & Natural Sciences

#2 **The antiepileptic drug valproic acid alters microglial number in early postnatal brain development in the valproic acid model of autism**
Allison Loyola

#8 **Identifying Fine-Scale Qualities of Greater Sage-grouse (Centrocercus urophasianus) Habitat Using Natural Color and Multispectral UAS Imagery**
Brooks Myers

#13 **Effects of B4GALNT1 expression on metastatic phenotype and response to treatment in osteosarcoma cell lines**
Fatemeh Zareihajiabadi

#18 **Developing a radioimmunotherapy for Synovial sarcoma**
Jeffrey Okojie

#25 **Population structure of Redband Trout of Idaho and Oregon**
Tyler Breech

#34 **Diel patterns of greenhouse gas emissions from a montane intermittent stream during the seasonal flow recession**
Riley Lanfear

#40 **Expression and identification of cellular pathways in which the Streptococcus pneumoniae small RNA spd_sr78 interacts.**
Sajal Acharya

Engineering, Physical & Mathematical Sciences

#3 **Insights into Gender-wise Contributions in Software Development Projects**
Arifa Islam Champa

#12 **Finite Element Analysis of High-Pressure Compressed Air Energy Storage Tank**
Durga Parajuli

#15 **Machine Learning Approaches and Data Driven Control Design Strategies Applied to Dynamic Systems**
Golam Gause Jaman

#19 **The Use of Charged Monomers to Create Water Soluble Polysulfides for Heavy Metal Removal**
Kelsi McDermott

#22 **Slotted Waveguide for High Dielectric Heating**
Zayed Mohammad

#24 **Localization of Partial Discharges in Power Transformers during Factory Acceptance Testing**
Kiran Pandey

#27 **A Review of Mobile Robot Technology for Security Applications at Nuclear Facilities**
Ujwal Sharma

#30 **Phishing Email Detection using Machine Learning and Natural Language Processing**
Md Fazle Rabbi

#36 **Detection of Malware in UHF RFID User Memory Bank using Multiple Machine Learning Models on Signal Strength Data in the Frequency Domain**
Shah Md Nehal Hasnaeen

#39 **Effect of dielectric constant on indoor localization of different fruits and vegetables exploiting RFID tags**
Suman Neupane

Health, Nutrition & Clinical Sciences

#4 **Improving Anti-Arthritic Effects of Novokinin through Bisphosphonate Conjugation**
Arina Ranjit

#6 **Protecting and promoting the rights of the 'reserve army of labour': A policy analysis of structural determinants of migrant worker health in Pakistan and Qatar**
Aysha Zahidie

#9 **COVID-19 Taste/Smell Changes: Impact on Dietary Intake & Potential Coping Strategies**
Chelsea Cobabe

#17 **Food Insecurity and the Student Athlete**
Shalissa Tomkinson

#20 **Barriers to Accessing Mental Health Services in Idaho Among Rural Latino Populations**
Julia Phelps

#26 **Culturally Competent Sexual Education Program for South East Idaho Youth**
Lexy Packer

#31   **Assessment of Access to Healthcare for Latino Farmworkers in Eastern Idaho**
Noemi Rivas

#33   **Renin-Angiotensin System Components and Arachidonic Acid Metabolites as Biomarkers of COVID-19**
Biwash Ghimire

#43   **Cervical Cancer and HPV Vaccination: The Disparity in Latinas**
Kayler Detmer

Humanities, Behavioral & Social Sciences

#1   **Making Sense of Livestock-Grizzly Conflict in Southwest Montana: Ranchers' Perspectives on Conflict-Reduction Influenced by Broader Social Landscape Shifts**
Allegra Sundstrom

#7   **Personality Cues on Instagram and Twitter: A Lens Model Analysis**
Chloe Pedersen-San Miguel

#11   **A Life of Labor: The Socio-politics of Pandemic Living with Chronic Illness**
Chyanne Yoder

#14   **Review of Asian American Preferences for Rapport Building and Therapist Characteristics**
Eliana Claps

#23   **"Tell Me a Real Story": Motherhood and Intertextuality**
Jessica Woolley

#28   **The impact of Online Relationship Social Comparisons on the Well-being of Singles**
Makenzie Peterson

#32   **Acculturation of Japanese Burials in Southeastern Idaho**
Juliette Bedard

#38   **Uncertainty in person perception: The role of anchoring on personality judgment**
Jacob Hubers

Keynote Speaker

Robert W. Lion, Ph.D.

Professor of Human Resource Development

Dr. Rob Lion is a Professor of Human Resource Development and has worked at ISU since 2012. Over the past 20 years, Rob has held various leadership roles inside and outside of higher education. From Assistant Dean and Department Chair, to business owner, Chair of Strategic Planning and Chairman of the Board of Directors he works to infuse his academic experiences into the world of work. Among colleagues and industry leaders he is highly respected for his thought leadership in the areas of work culture, employee performance, and leadership development. Rob attributes much of his success to his scholar-practitioner approach to work. With students and clients alike, he builds individual and organizational capacity through the use of evidence-based frameworks. His research has been published in a variety of academic journals including the Journal of Organizational Psychology, Human Resource Research, Performance Improvement Quarterly, and Advances in Developing Human Resources. During his time at ISU, Dr. Lion has been recognized as a collaborator and a champion for student success.

In 2011, Dr. Lion was the recipient of International Society for Performance Improvement's *Distinguished Dissertation Award*. In 2017, he was awarded the Idaho State Journal's *20 Under 40 Award*. Prior to arriving at ISU, Dr. Lion served as the assistant dean of the College of Business at Northern Michigan University where he established numerous initiatives that bridged the University with local, regional, and national companies, including the development an executive mentorship program, co-curricular student development program, and a number of academies such as entrepreneurship and leadership development for community members.

Dr. Lion and his wife, Angie, always seem to be on the go. When they are not working and "*building the life they love*," they spend their time, as Chris Farley used to say on Saturday Night Live as the beloved motivational speaker Matt Foley, "in a van down by the river." As a teacher and speaker on the topic of motivation, the irony is not lost on Rob. 🙂

2022 GRS Award Recipients

Oral Presentation Award Recipients

Top Oral Presentation in Biological & Natural Sciences

Presented to

Joshua Lingbloom

A Landslide Inventory and Geostatistical Analysis for Grand Teton National Park, Wyoming

Top Oral Presentation in Business, Economics & Public Administration

Presented to

Pedro Mena

Survey of Markets for Nuclear Power in Western North America

Top Oral Presentation in Education, Learning & Training

Presented to

Bailey Dann

Shoshoni Language Revitalization in the Classroom

Top Oral Presentation in Engineering, Physical & Mathematical Sciences

Presented to

N. Evelin Paucar

Simultaneous Electricity Generation and Nutrient Recovery from Wastewater Using Microbial Fuel Cell Technology

Top Oral Presentation in Health, Nutrition & Clinical Sciences

Presented to

Makenzie Gustafson

Introducing an Adverse Childhood Experiences (ACEs) Screening Program in the Pediatric Primary Care Setting: A Quality Improvement Project

Top Oral Presentation in Humanities, Behavioral & Social Sciences

Presented to

Mel Anderson

Trauma Unheard: The Social Disenfranchisement of Grief

Poster Presentation Award Recipients

Top Poster Presentation in Biological & Natural Sciences
Presented to
Rebecca Hazard

Targeted Enrichment of Ancient DNA through Hybrid-Capture with RNA Baits

Top Poster Presentation in Business, Economics & Public Administration
Presented to
Rana Mazumder

The Impact of Corporate Governance Status on Estimating Future Corporate Earnings

Top Poster Presentation in Education, Learning & Training
Presented to
Rifat Ara Tasnim

ARCoD: A Serious Game Approach to Measure Cognitive Distortions in Individual

Top Poster Presentation in Engineering, Physical & Mathematical Sciences
Presented to
Shovan Chowdhury

Evaluation of Tree Based Regression over Multiple Linear Regression for Non-normally Distributed
Data in Battery Performance

Top Poster Presentation in Health, Nutrition & Clinical Sciences
Presented to
Arina Ranjit

Bone Targeted Delivery of Novokinin, an Angiotensin Type II Receptor Agonist, for Improving its
Pharmacokinetics and Enhancing Therapeutic Effects

Top Poster Presentation in Humanities, Behavioral & Social Sciences
Presented to
Megan Bigham

The Influence of Perceived Parental Acceptance of Gender-Diverse Identity Among Autistic
Individuals on Quality of Life

List of Graduate Student Participants

College of Arts and Letters

Abeer Alqurashi (Political Science - DA)
Juliette Bedard (Anthropology - MS)
Mel Bussard (Experimental Psychology - PhD)
Eliana Claps (Clinical Psychology - PhD)
Jacob Harris (Sociology - MA)
Kaitlyn Hart (Communication - MA)
Jacob Hubers (Experimental Psychology - PhD)
Ailun Li (Clinical Psychology - PhD)
Brianna Lords (English - MA)
Madison Mancini (Communication - MA)
Pamela Pascali (Anthropology - MS)
Chloe Pedersen-San Miguel (Experimental Psychology - PhD)
Makenzie Peterson (Experimental Psychology - PhD)
Allegra Sundstrom (Sociology - MA)
Francis Whitfill (Spanish - MA)
Jessica Woolley (English & the Teaching of English - PhD)
Chyanne Yoder (Anthropology - MS)

College of Science and Engineering

Sajal Acharya (Microbiology - MS)
Ujjwal Adhikari (Microbiology - MS)
Tyler Breech (Biology - PhD)
Arifa Islam Champa (Computer Science - MS)
Shah Md Nehal Hasnaeen (Electrical & Computer Engineering - MS)
Golam Gause Jaman (Engineering & Applied Science - PhD)
Riley Lanfear (Biology - MS)
Kelsi McDermott (Chemistry - MS)
Uma Shankar Medasetti (Applied Science & Engineering - PhD)
Zayed Mohammad (Engineering & Applied Science - PhD)
Colleen Murray (Biology - MS)
Brooks Myers (Geosciences - PhD)
suman Neupane (Electrical & Computer Engineering - MS)
Reuben Opoku (Microbiology - MS)
Kiran Pandey (Electrical & Computer Engineering - MS)
Durga Parajuli (Civil Engineering - MS)
Md Fazle Rabbi (Computer Science - MS)
Ujwal Sharma (Civil Engineering - MS)
Olivia Stanley (Geology - MS)
Rifat Ara Tasnim (Engineering & Applied Science - PhD)
Henry Thomas (Biology - MS)

College of Business

Ashok Chakraborty (Accountancy - MAcc)
Rian Binte Kamal (Accountancy - MAcc)
Joshua Luker (Business Administration - MBA)
Ritesh Yadav (Business Administration - MBA)

College of Education

Danielle Fernandez (Instructional Technology - M.Ed)
Reed Hepler (Instructional Technology - M.Ed)

Kasiska Division of Health Sciences

College of Pharmacy

Amy Burgin (Pharmaceutical Science - PhD)
Biwash Ghimire (Pharmaceutical Science - PhD)
Yuying Huang (Pharmaceutical Science - PhD)
Elizabeth Kara (Pharmaceutical Science - PhD)
Sana Khajeh Pour (Pharmaceutical Science - PhD)
Allison Loyola (Pharmaceutical Science - MS)
Sarah McCollum (Pharmaceutical Science - PhD)
Jeffrey Okojie (Pharmaceutical Science - PhD)
Arina Ranjit (Pharmaceutical Science - PhD)
Fatemeh Zareihajiabadi (Pharmaceutical Science - PhD)

College of Health

Dawn Amos (Public Health - MPH)
Shannon Burke (Physician Assistant Studies - MPAS)
Chelsea Cobabe (Nutrition - MS)
Alyssa Cruz (Clinical Mental Health - M.Coun)
Kayler Detmer (Physician Assistant Studies - MPAS)
Lauren French (Physical Therapy - DPT)
Jensen Haigh (Physical Therapy - DPT)
Tyler Moerer (Athletic Administration - MPE)
Lexy Packer (Public Health - MPH)
Julia Phelps (Clinical Mental Health - M.Coun)
Kathleen Rodgers (Public Health - MPH)
Shalissa Tomkinson (Nutrition - MS)
Aysha Zahidie (Public Health - MPH)

School of Nursing

Noemi Rivas (Nursing Practice - DNP)

Abstracts

Sajal Acharya

Subject: *Biological & Natural Sciences*   Poster #40

Expression and identification of cellular pathways in which the Streptococcus pneumoniae small RNA spd_sr78 interacts.

Streptococcus pneumoniae colonizes the mucosal surfaces of the human upper respiratory tract and, from there, can potentially spread to other susceptible host sites. When transitioning from colonization to an active infection, evidence suggests that small non-coding RNAs (sRNAs) are likely key players that modulate the expression of genes that encode proteins involved in virulence. To date, >100 sRNAs have been identified in S. pneumoniae. This study focuses on the S. pneumoniae sRNA spd_sr78, which is located within the 5' untranslated region of the mgtA transcript (encoding a manganese (Mn)-specific transporter) and is expressed as a byproduct of transcription of mgtA and the sRNA also overlaps the cis-acting Mn/Ca metal-sensing yybP-ykoY family riboswitch. Based on the location of spd_sr78, we hypothesize that spd_sr78 may participate in modulating intracellular metal pools as a trans-acting regulatory RNA by controlling expression of target transcripts that encode proteins involved in metal homeostasis and other virulence protein factors that actively engage metal. To test our hypothesis, we will first establish the best method for sRNA extraction among three methods (Hot-phenol, fast-prep, and qiazol approach), then develop a standardized method to detect and track the expression of sRNA spd_sr78 in different environmental growth conditions. Bacteria will be grown in rich and defined mediums with varying concentrations of Mn or calcium and total RNA enriched for sRNAs will be isolated during various stages of bacterial growth. The expression level of the isolated bacterial sample will be determined using Northern blot with Cy3-conjugated DNA oligos complementary to sRNA spd_sr78 sequence. These data will provide a comprehensive analysis of when the sRNA spd_sr78 is expressed and used by S. pneumoniae. The data will also serve to guide future experiments to define the role of sRNA spd_sr78 in S. pneumoniae colonization and survival in the human host related to metal homeostasis.

Ujjwal Adhikari

Subject: *Biological & Natural Sciences*

Asbestos exposure alters the inflammation response in an acute exposure mouse model

Libby amphibole (LA) asbestos exposure can lead to serious chronic diseases like cancer, lung disease, and autoimmunity. To better understand the early responses that may lead to these chronic effects, our current study examines short-term (14 day) effects of an environmentally relevant low dose LA exposure. In this study, C57BL/6 mice were exposed to fiber suspensions at a very low dose of 3 ug/mouse through oropharyngeal aspiration. On day 14 post-LA exposure, pleural cavity and bronchoalveolar lavage (BAL) were assessed for immune cell recruitment and inflammation markers. Our data show the activation of polymorphonuclear leukocytes which are the immune cells containing granules with enzymes that are released during inflammation and increased monocytes recruitment in the pleural cavity at day 14 post-exposure, which indicates prolonged acute inflammation at this site. We suspect that fibers translocated from the lungs to the pleural cavity during the 14-day which dysregulated the inflammation and resolution responses in this cavity. In addition, LA exposure led to changes in innate immune cell profiles and increased markers of immune activity including neutrophil elastase (NE) and PAD4 secreted by neutrophils in the pleural cavity. Together, our findings illustrate that low dose LA exposures have inflammatory effects, altering the immune cell trafficking and activation patterns in both male and female mice, with overall increased inflammation in males. Moreover, our data suggest early immune responses to

asbestos may increase the risk of pulmonary and pleural disease, thus supporting the idea that low-dose fiber exposures are a matter of public health concern.

Abeer Alqurashi, James W. Stoutenborough

Subject: *Humanities, Behavioral & Social Sciences*

The Umbrella of Religious Freedom: The Impact of Support for Religious Freedom on Public Opinion Toward Female Genital Mutilation / Cutting (FGM/C)

At least 500,000 females in the U.S. have undergone or are at risk for Female Genital Mutilation/cutting (FGM/C) (Krupa, 2017). More than 100 female children in the U.S have been affected (Krupa, 2017). In the last few years, the practice of FGM/C has been documented among immigrants and refugees in the US (Brown, 2018). Shaeer (2013) indicated that FGM/C among Muslims girls was 55.4% in comparison in other groups that practice this custom (Shaeer ,2013). Von der Osten-Sacken et al. (2007) FGM/C is more of a cultural norm than a religious one. The authors claimed that this custom was found in Muslim and non-Muslim countries in Africa, particularly in Arab countries such as Egypt (Von der Osten-Sacken et al, 2007). According to the study, the prevalence of FGM/C in Egypt is about 97 percent, especially in rural areas (Von der Osten-Sacken et al, 2007). In describing the controversies related to FGM/C in Pennsylvania, Brown (2018) mentioned that the rise in FGM/C is due to an increase in the number of immigrants from countries where it is practiced. These immigrants are settling mainly in California, New York and Minnesota (Brown, 2018). This research examines whether those who strongly support religious freedom will support the right of individuals living in the U.S. to practice FGM/C for religious purposes. The researcher conducted a survey at Idaho State University (ISU). The survey collected the public opinions of ISU students, age 18 and up about religious freedom. Approximately 320 respondents completed the survey. Those who are international, white, and trust the U.S. government, support the right of parents to refuse health care for their children, and support the right to take breaks to pray are more likely to support FGM/C under the umbrella of religious freedom in the US and abroad.

Dawn Amos, Clarissa Richardson

Subject: *Humanities, Behavioral & Social Sciences*

The impact of self-critical perfectionism on mental health outcomes during the COVID-19 pandemic

Previous research indicates that perfectionism is becoming increasingly common among young adults (Curran & Hill, 2019). Self-critical perfectionism has been linked to negative mental health outcomes, such as depression, anxiety, and stress (Rnic et al., 2021; Molnar et al., 2022). In turn, traumatic or stressful life events can place those with self-critical perfectionism at higher risk for worse mental health (Levine, Andrade, & Koestner, 2022). The COVID-19 pandemic caused notable increases in stress among the US population, particularly among college students (Lee et al., 2021). Yet, limited research has been conducted on college students regarding the impact of self-critical perfectionism on mental health outcomes during the pandemic. In this study, 837 undergraduates were surveyed at four time points between the fall of 2020 and the spring of 2021. The Depression Anxiety Stress Scale-21 (DASS-21; Lovibond & Lovibond, 1995) and the Short Almost Perfect Scale-Revised (SAPS-R; Rice, Richardson, & Tueller, 2014) were administered to measure mental health outcomes and self-critical perfectionism. Multi-level modeling displayed significant differences in mental health outcomes between participants with high and low levels of self-critical perfectionism ($p < .05$). Compared to participants who scored low on self-critical perfectionism, participants who scored high on self-critical perfectionism had significantly higher levels of depression, anxiety, and stress scores between Time 1 and Time 4. These results indicate that stressful life events may predict worse mental health outcomes longitudinally for young adults who have high levels of self-critical

perfectionism. Future research should investigate possible interventions universities can employ to address the impacts of self-critical perfectionism.

Juliette Bedard, Bailey Bates, Trace Miles

Subject: *Humanities, Behavioral & Social Sciences*   Poster #32

Acculturation of Japanese Burials in Southeastern Idaho

The northwestern US has experienced many immigration events within the last two hundred years due to Japan's opened borders for trade with the U.S, and World Wars I and II. These communities of migrants experienced acculturation and assimilation into western culture. Japanese families specifically went to the southeastern Idaho region to assist with the construction of the railroad and many have settled here for generations. We collected the stylistic data of 100 Japanese and White gravestones in Mountain View Cemetery. We then applied statistical analysis to determine patterns within each culture's headstone to perform a comparative study. Japanese headstones indicated an initial resistance to acculturation with strong family units with multiple people for one headstone. The inscriptions also changed over time: the Japanese started with more writing and transitioned to just family names and dates, similar to White graves. The slow transition was likely due to two primary conflicts. The first between the dominant western Christian and Japanese cultures of belief and the second, the Japanese response to better amalgamate with western culture after forcefully imprisoned in internment camps during World War II. Studying the gravestones at Mountain View Cemetery offers a unique insight into the political and religious influences in southeastern Idaho during the mid-twentieth century. There is an obvious shift of Japanese assimilation and acculturation into western culture seen through stylistic changes in gravestones over time. Despite these changes, Japanese culture has continued to portray the importance of strong family units within the cemetery.

Tyler Breech, Ernest Keeley, Janet Loxterman

Subject: *Biological & Natural Sciences*   Poster #25

Population structure of Redband Trout of Idaho and Oregon

Widely distributed species, due largely to environmental differences across the range, often exhibit significant intraspecific variation between populations. Describing and quantifying these within-species differences is crucial for conservation of species, as the adaptive capacity of taxa rests on genetic and phenotypic diversity. Additionally, assessments of population vulnerability to extirpation and extinction incorporate population differences for the most accurate results. Often, species are divided into subspecies or distinct population segments to describe within species differences, and historically phenotypic differences were used to define subspecies. However, genetic tools have revealed divergence patterns that general phenotypic observations may not capture. Rainbow Trout (Oncorhynchus mykiss) are one of the most widely distributed salmonid species, inhabiting an array of conditions from desert and montane streams to lakes and marine habitats, and populations exhibit a substantial amount of variation across the geographic range. Previous studies have sought to define subspecies and distinct populations using either classical morphometric descriptions or molecular analyses; however, the degree to which phenotypic classifications agree with molecular groupings is largely unknown. Some recent analyses suggest classical phenotypic demarcations may not capture significant genetic divergence between populations. To understand the relationship between morphological and genetic variation among native Rainbow Trout populations across subdrainage boundaries, we sampled Redband Trout in watersheds across Idaho and Oregon. Using mitochondrial DNA we examined patterns of within-species variation and genetic divisions of populations.

Ashok Chakraborty

Subject: *Business, Economics & Public Administration*   Poster #5

Family Relationship and Financial Performance

Excellence in corporate governance is one of the prerequisites for the quality, functioning and sustainable growth in today's sophisticated business environment. When one person plays both roles at a time as the CEO and Chairman of the board, it is called CEO-duality. Despite the voluminous literature on the association between CEO duality (i.e., the CEO also serves as Chairperson of the Board) and firm performance, there is little research on how firm performance is affected when the CEO and Chairperson have a familial relationship. This relationship has been termed as quasi CEO-Chairperson duality. No significant empirical investigation has been found into the family relationship between the CEO and Chairman of the company. This research gap has been fulfilled by this research project. The primary research question of this research project is whether the appointment of CEO and Chairperson from the same family negatively affects the performance of the firm or not. This study includes non-financial firms grouped under ten different industries listed on the Dhaka Stock Exchange. The multivariate regression analysis (OLS and two-way clustered standard error) has been performed to test the hypothesis. Return on Assets (ROA) has been applied to measure accounting-based financial performance where Tobin's Q has been used to measure market-based performance. This study has found a significant negative influence of CEO-Chairman family relationship on firm performance, as measured by return on assets (ROA), and no significant impact on firm performance when measured by Tobin's Q. The result of the study is consistent with agency theory, which suggests that a CEO-Chairperson family association would make the CEO more powerful – thus rendering the board ineffective at monitoring managers – and create opportunities for unbridled managerial opportunism that leads to deteriorating firm performance.

Arifa Islam Champa, Md Fazle Rabbi, Minhaz Zibran

Subject: *Engineering, Physical & Mathematical Sciences*   Poster #3

Insights into Gender-wise Contributions in Software Development Projects

This work presents a large quantitative study of the contributions of females compared to males in open-source software projects. The insights from this study are useful in addressing gender disparity in the field. We use World of Code (WoC) [1] that includes a curated dataset consisting of 173 million git repositories. We conduct an in-depth analysis of over 10 thousand developers' contributions to more than 81 million different projects in the WoC infrastructure. Female participation is found substantially low (7.5% or lower) and females are found more engaged in non-coding work compared to male. Female contributors consistently make fewer commits than males across five different task categories, with a noteworthy very large disparity in contributions to 'security-related' tasks. Females contribute in all programming languages. This study provides a quantitative analysis of the participation of female contributors in open-source software projects in WoC, finding a significant gender gap in the field. The study shows that female contributors make less contributions than male contributors in both coding and non-coding tasks. The results of the study are derived from a large dataset of over 10,000 developers' nearly 21 million commits to more than 81 million projects and verified for statistical significance.

Eliana Claps, Joshua Swift

Subject: *Humanities, Behavioral & Social Sciences*   Poster #14

Review of Asian American Preferences for Rapport Building and Therapist Characteristics

As the US continues to march toward a majority-minority demographic (Vespa et al., 2020), there is an increasing demand for culturally-sensitive approaches to psychotherapy (Koç & Kafa, 2019). Although the therapeutic alliance is known to be one of the most consistent predictors of treatment outcomes in psychotherapy (Flückiger et al., 2018), less is understood about how methods for developing a strong

alliance may differ from one culture to the next. In this poster, we will present the results of a comprehensive literature review examining Asian American preferences regarding the therapeutic alliance. A large body of literature exists that has sought to identify Asian American preferences for psychotherapy (Kim et al., 2005; Leong, 1986; Sim et al., 2018; Swift et al., 2013). In our current review, we summarize the literature regarding Asian American preferences for different elements of the therapeutic relationship, including building rapport and addressing client preferences concerning their therapists' personality characteristics. In addition to identifying psychotherapy preferences of Asian Americans in these areas, we will present findings discussing cultural factors that may contribute to the preferences reported in previous studies. Last, in this poster we will present gaps and limitations in the existing literature and future research directions. The results from this review can be used to inform clinical practice and future research, with the ultimate goal of further describing methods for providing culturally appropriate care, particularly for Asian American clients.

Chelsea Cobabe

Subject: *Health, Nutrition & Clinical Sciences*   Poster #9

COVID-19 Taste/Smell Changes: Impact on Dietary Intake & Potential Coping Strategies

Background: Smell/taste changes have been a common side effect with COVID-19 infection. As aroma and flavor of food are key contributors to food preferences, and play a role in food choices it is likely changes will impact dietary intake. Both quality and quantity of food may be impacted as preferences and appetite are affected. The purpose of this study was to identify dietary changes resulting from smell/taste alteration due to COVID-19 infection and explore potential coping strategies for those suffering with taste/smell changes.

Methods: Data was collected through two focus group sessions. Participants (n=13) answered questions regarding their experience with taste and/or smell changes. The focus groups were recorded and transcribed. The transcriptions were used to identify and code themes.

Results: Participants in this study reported alterations to food preferences and/or intake as a result of smell/taste changes related to COVID-19. Common themes noted by participants included reduced appetite, decreased desire to eat, and lack of pleasure in eating. Other identified themes included weight changes, new textural sensitivities, and the avoidance of previously enjoyed foods. Several participants also expressed changes to their mental health, especially when smell/taste alterations lingered for months.

Conclusion: Smell/taste changes associated with COVID-19 can negatively affect dietary intake and mental health. While common themes emerged from the focus groups, each participant had their own experience with smell/taste changes. To help preserve nutritional status and assist in recovering some enjoyment of eating, an individualized approach should be taken to address the taste and smell changes experienced.

Kayler Detmer, Shannon Burke

Subject: *Health, Nutrition & Clinical Sciences*   Poster #43

Cervical Cancer and HPV Vaccination: The Disparity in Latinas

Cervical cancer is the 4th most common cause of cancer in women worldwide and the second leading cause of cancer death for women in the Dominican Republic. Hispanic women are 1.5x more likely to develop and die from cervical cancer compared to White women. The Human Papillomavirus, a virus transmitted sexually and through direct contact, is the cause of 99% of cervical cancer cases. Cervical cancer is highly preventable through HPV vaccinations and routine screenings, and treatable if caught at early stages. This study aimed to increase knowledge of cervical cancer in the Latina population and identify knowledge gaps to guide our patient education as practicing PA's.

Google Forms pre- and post-surveys gauged participant knowledge of cervical cancer, risk factors, causes, prevention, and HPV vaccination. Surveys were administered before and after delivery of an educational

presentation. Fliers with QR codes linking to surveys were delivered to healthcare facilities, community colleges, and community centers. Participants were prompted to complete a pre-survey, view an educational presentation, and complete a post-survey. Over 40 responses were collected from females in the Pacific Northwest and the Dominican Republic. Pre-survey data suggested the majority of participants understood HPV is the number one cause of cervical cancer, but many had limited knowledge about who should receive the HPV vaccine. Additionally, participants lacked an understanding of the pap smear and screening guidelines. Knowledge in all areas increased post-survey. Most importantly, nearly every participant reported an increase in the likelihood of sharing this information with family and friends and receiving the HPV vaccine. Thus, our studies suggest that trends in cervical cancer screening adherence and HPV vaccination rates in the Latina population may be due to a lack of sufficient outreach and education. Providing patients with easy to read hand-outs can increase overall understanding of cervical cancer

Danielle Fernandez

Subject: *Education, Learning & Training*

The history of Games in Education

Games have been around for centuries. There have been many examples of game-based learning from early in history. Plato saw games as a way to rest from studying hard. In the Renaissance, educators saw that games and play could work together in education. In the 17th century, John Amous Comeinus viewed games as a way of learning. He was using dramatization to help students learn the language. The 20th century introduced game-based learning by Jean Piaget and ELv Vygotsky. Finally, in the 21st century, we have a variety of digital games. (Hellerstedt 2019) Games can be used in various ways, from in the classroom to inside the home. Many teachers can attest that we have all had a student tell us," I learned that from my video game." As said by Kapp, "On its surface, gamification is simply the use of game mechanics to make learning and instruction more fun." (Kapp, 2012) For years educators have been using games in their classrooms to make learning more fun and engaging. Technology has helped change how games are used in the classroom opening many doors to teachers and students alike. This presentation will examine the history of games in education and some of the research on why they are effective in the classroom. Games that will be covered are: Ice breakers, No technology needed games, early technology games, internet-based games, adoption of non-educational games, and the future of games in the classroom. There currently is no set standard for evaluation games in education. One could use technology integration models for evaluation, such as the TCop Model, which looks at who uses the technology and how they use it. (Curry, Jackson, & Morin, 2022). A teacher could easily apply the model to games in education at different levels of integration.

Biwash Ghimire, Sana Khajeh Pour, Nasser Jalili Jahani, Elizabeth Middleton, Robert Campbell, Mary Nies, Ali Aghazadeh-Habashi

Subject: *Health, Nutrition & Clinical Sciences*   Poster #33

Renin-Angiotensin System Components and Arachidonic Acid Metabolites as Biomarkers of COVID-19

COVID-19, a highly contagious infectious disease caused by SARS-CoV-2, has emerged as this century's most consequential global health crisis. It has infected over 600 million people, resulting in more than 6 million deaths. The clinical outcome of this infection varies remarkably, with most of the patients being asymptomatic or presenting mild symptoms. However, some of the infected population group manifests complications such as acute lung injury and acute respiratory distress syndrome, requiring hospitalization, with some patients succumbing to the disease. The virus enters the cell by binding viral spike protein (S1) to angiotensin-converting enzyme 2 (ACE2) receptors in the epithelial cells. Internalization of ACE2 receptors reduces the availability of ACE2 protein, a vital regulator of the Renin-Angiotensin System (RAS). ACE2

converts the pro-inflammatory peptide Angiotensin II (Ang II) to the anti-inflammatory peptide Angiotensin 1-7 (Ang 1-7). The resulting accumulation of Ang II activates the angiotensin 1 receptor initiating an inflammatory process that results in a so-called cytokine storm. It also upregulates phospholipase A, causing arachidonic acid (ArA) release, propagating the inflammatory cascade furthermore. Given that systemic RAS plays an essential role in the homeostasis of vital organs such as lungs, heart, liver, and kidneys, we aimed to detect these biomarkers in plasma and correlate them with patient demographic variables and disease status, which can help us predict venerability of at-risk individuals and their possible future health complications.

Jensen Haigh, Michael Clarke, Lauren French, Jill Harris, Evan Papa

Subject: *Education, Learning & Training*

Game On! Integrating gamification to enhance Doctor of Physical Therapy (DPT) education

Gamification of course content has been utilized to enhance student learning outcomes in health professions education.[1,2] This method of presenting learning material to meet course objectives has shown improved student engagement and enjoyment.[3,4] However, to our knowledge no studies have investigated the effect of gamification on learning outcomes in online physical therapy education.[5] With the increase in utilization of online learning modalities, instructors need novel teaching strategies to enhance effectiveness within online platforms. The purpose of this study was to quantify student perceptions surrounding online course gamification within an entry-level Doctor of Physical Therapy (DPT) program. A post-course anonymous survey was administered following participation in an optional game, centered around the learning objectives for a Diagnostic Imaging course. Data was collected using a qualitative survey via Qualtrics. The outcomes measured included student satisfaction, motivation, overall knowledge acquisition, collaboration and engagement. The overall response rate of the survey was 90% (39 out of 43 students). The survey found that 97% of students enjoyed playing the murder mystery game, while all students stated they would recommend this class to a peer. Ninety five percent of students stated the game encouraged collaboration with their peers. Through participation, 95% of students experienced a rise in energy levels during class and 92% of students agreed that gamification improved their learning acquisition. Our results demonstrate gamification of online course content within DPT education provides improved means for collaborative and engaged learning. Utilizing game elements in an online platform increased student satisfaction, collaboration, engagement, and learning acquisition. Limitations to this study include acquiescence bias and response bias. Further research is needed across multiple programs to increase generalizability of these results and to solidify these effects on overall learning outcomes.

Jacob Harris

Subject: *Humanities, Behavioral & Social Sciences*

The QAnon Infection: How Families Have Reacted to Members' Conspiratorial Identities

The conspiracy-theory-based movement known as QAnon is a danger to national security and society's most fundamental unit of organization, the family. My research investigates how families have been affected by and coped with a member's devotion to QAnon's conspiratorial ideologies. Drawing on 23 semi-structured interviews with family members of QAnon affiliates and a content analysis of the subreddit r/QAnonCasualties, I demonstrate how families manage, adapt, and abandon their QAnon-infected family members. Initially, members try to manage their QAnon-affiliated family members' reality by refuting and debunking their conspiracy theories. When these efforts fail, it forces members to adapt to their QAnon affiliates' conspiratorial identities by setting physical, emotional, and conversational boundaries. Families reach the abandonment stage when QAnon affiliates disrespect these boundaries and develop unfamiliar identities rooted in a conspiratorial reality that is unreciprocated by their non-QAnon-affiliated family

members. The consistent setting and breaking of boundaries by family members with conflicting ontologies inhibit their ability to trust each other and thus severely jeopardize the preservation of their relationships. I interpret my results through the lens of contemporary social theorist Anthony Giddens, who emphasizes that successful interpersonal relationships rely on trust and can only be maintained when people have relatable realities. This research provides a basis for understanding how families fail to adapt to members' conflicting ontologies by assessing the effects of QAnon conspiracy theories on the family system.

Kaitlyn Hart

Subject: *Humanities, Behavioral & Social Sciences*

The Effect of Gender in Journalism Beats

Studies have shown time and time again that the mental and emotional consequences of being a journalist in modern-day America can be tumultuous, with female journalists often being the biggest targets for harassment. Research has found that there has recently been a steady increase in the number of female journalists, yet these women are still more likely to be targets of harassment than their male counterparts. Because research usually studies this topic under the lens of inherent societal sexism, there is little research to find out if women are being unnecessarily pushed by employers toward reporting on stories that will garner them more harassment. Is there a gender bias when it comes to choosing your beat as a journalist? Or do you get a say in your beat at all? This study strives to discover if certain beats within journalism are dominated by specific genders, and how this affects the people working on the beats that are seen as more controversial and dangerous. Throughout this study, of 68 participants comprised of 42 women and 26 men, we have found that 32 of the women have dealt with negative experiences in their position as journalists, in the sense that they have been violently targeted both online and offline by the public for their reporting. This is compared to only 9 men, who have experienced similar instances of harassment. But is this based solely on them being women or on the content they are producing in the news? This study highlights the possibility that gender is a variable when it comes to who is reporting on different kinds of issues.

Shah Md Nehal Hasnaeen

Subject: *Engineering, Physical & Mathematical Sciences*   Poster #36

Detection of Malware in UHF RFID User Memory Bank using Multiple Machine Learning Models on Signal Strength Data in the Frequency Domain

Radio frequency identification (RFID) uses radio waves to automatically identify objects equipped with an RFID 'tag' antenna. The existence of RFID malware [1] poses a significant threat to Internet of Things (IoT) systems. A method for detecting SQL injection virus malware in Ultra High Frequency (UHF) RFID user memory is explored using a supermarket supply chain as an example. 1000 frequency-domain signal strength readings of RFID tags in the UHF band (902-908 MHz) are observed for tags containing either normal or malicious data. To treat this as a supervised learning classification problem, feature reduction was necessary due to large data space (801 points). Engineered feature reduction of observed data is accomplished by observing number of maxima within smaller feature bands. After feature reduction, data is split in to test and training, then multiple machine learning models (decision tree, random forest, XGBoost, logistic regression, naive Bayes, support vector machine and k-nearest neighbors) are trained and compared. The random forest model provided 82% accuracy. The highest contributing feature bands towards detection were the low (902.934-903.451 MHz, 903.451-903.967 MHz) and high (907.066-907.582 MHz) bands in the observed spectrum. Increasing number of feature bands increased accuracy for both feature engineered datasets until reaching saturation at around 10 bands. In this work, we were able to establish that RFID malware has a correlation with signal data in the frequency domain, thus removing the

need to read user memory bank data and use electromagnetic fingerprints as a cost-effective means of malware detection.

Reed Hepler

Subject: *Education, Learning & Training*

Effectively Using ChatGPT in Education In Accordance with the Technology Consumer or Producer (TCoP) Model

My presentation will examine the plethora of academic articles and education-centered communications and publications regarding ChatGPT, its potential uses, its drawbacks, and potential ethical concerns regarding the tool. Attendees will also be able to use ChatGPT in an effort to learn how to use it in a constructive and effective manner. The majority of the time will consist of demonstrations and experiential training. Attendees will be able to use ChatGPT or see it demonstrated in an effort to learn how to use it in a constructive manner. This training will be focused on how to use ChatGPT effectively in educational settings, not on how to detect ChatGPT use in assignment submissions. ChatGPT, like many technological communications tools, can be used in accordance with time-tested theories and philosophies regarding education. The TCoP model of technology integration (Curry et al., 2022) has four levels of educational technology use: Teacher as Consumer, Teacher as Producer, Student as Consumer, and Student as Producer. ChatGPT and other innovative technologies can be used to support education for students in a wide variety of contexts. While ChatGPT is widely used to produce and assess textual materials, it can also be used to help education involving images and audiovisual material. For example, educators can encourage students to prompt ChatGPT to give them outlines for videos or suggestions for effective images they can create. Students can react in multiple ways to the productions of ChatGPT. Through these experiences, students will learn both about the subject of their course and how to effectively use technology. They can apply the lessons learned through ChatGPT-enhanced assignments as they augment their work and school products through the use of text generators. They can provide complex prompts and learn how the chatbot will react to certain phrases.

Jacob Hubers, Mel Bussard, Tera Letzring

Subject: *Humanities, Behavioral & Social Sciences*

Poster #38

Uncertainty in person perception: The role of anchoring on personality judgment

The focus of personality judgment research has shifted between accuracy and error (Colvin & Funder, 1991; Funder, 1987), which are often viewed as opposite, rather than complementary, processes (Haselton & Funder, 2006). The present study examined the use of uncertainty heuristics, specifically anchoring (Tversky & Kahneman, 1974), in making personality judgments. Participants were assigned to one of three conditions: 1) no anchor and the typical order of items, 2) no anchor and items organized by trait with trait names, or 3) a normative anchor (using mean values from Soto & John, 2017) and items organized by trait with trait names. Then, participants observed and rated six targets on the Big Five traits (Soto & John, 2017). It is hypothesized that judges who were given anchor values for traits would make judgments that are closer to the anchors than judges who were not given anchor values, and that this effect would be stronger for more difficult-to-judge traits. The distance of the judgments from the anchor will be compared across conditions. Additionally, within the anchor group, differences in the distance from the anchor value will be compared across traits.

Golam Gause Jaman

Subject: *Engineering, Physical & Mathematical Sciences*

Poster #15

Machine Learning Approaches and Data Driven Control Design Strategies Applied to Dynamic Systems

The utility of Machine Learning (ML) approaches to solve non-linear systems are gaining attention within the research community. As computational capacity improves, penetration of ML applications increases as well. The vast majority of the systems people interact with are dynamic in nature. ML approaches often solve a complex dynamic system with limited or no domain knowledge but have shown success by applying deep learning techniques that capture the system's characteristics as a black box model. Numerous popular artificial neural networks delivered a high performance with or without transfer learning but without much explanation as to why deep learning efforts show frequent successes in a particular application. The study investigates several ML techniques for a wide spectrum of applications to address effective workflow and adaptation of ML approaches along with control strategies applied to complex problems.

The study described here is segmented into six separate research works. Efforts are made to identify merits and challenges associated with ML learning and data-driven control strategies applied to dynamic systems. These processes are found across several engineering fields including biomedical, aerospace, materials, and advanced manufacturing. The six different applications described in the study are processed through five key design decisions namely, experiment design, data formats, feature extractions, model architecture, and controller design followed by performance analysis. In the additive manufacturing (AM) and continuous electric field assisted sintering (CEFAS) are the only two applications for which data driven controller design is proposed. At the current state of the research, the hand motion classification techniques, controller design for the AM, mechanical strength parameter prediction in a novel material, and predictive RNN for predicting solidification trajectory in AM, have shown notable performance relative to industry and research standards. The spike stall pre-cursor prediction in a compressor system and the controller design for the CEFAS are still in progress.

Rian Binte Kamal

Subject: *Business, Economics & Public Administration*　　　　　　　　Poster #21

Empirical Analysis of Triple Bottom Line Reporting in The Banking Sector and its Determinants: Focus on Environmental Issues

This is an exploratory paper with the aim of deciding the degree of social responsibility in the banking sector of Bangladesh, and to emphasize the need to enhance corporate social responsibility by private banks. Environmental sustainability has always been vital for socio-economic development. In the case of the banking sector, as per the study, private banks are not disclosing enough information about social and environmental factors.

I have chosen nine leading private banks of Bangladesh and obtained the data for fifteen years, summing 134 firm years. Content analysis was done to find out the total words disclosed. Three dimensions of triple bottom line reporting have been identified. Data was collected mostly from annual reports, websites, newsletters, and Dhaka Stock Exchange websites.

1. The TBL and its core value of sustainability have become compelling in the business world. In Bangladesh financial statements mostly focus on economic and financial data.
2. In Bangladesh few banks follow or at least try to follow rules prescribed by the Global Reporting Initiative (GRI). However, other banks or financial organizations do not follow these rules.
3. Banks consider social and environmental data in a similar manner.
4. Repetitive words are used, and sometimes fictitious data are presented.

In my study, I found that banks primarily emphasize economic and social disclosure. I also find that after 2007 most of the banks emphasized reporting triple bottom line issues. Previous research was done either based on single year or specific sectors of banks, but this research includes different types of banks and 15 years of data altogether. Bangladesh should strive to be more transparent in the facts presented about financial and other sectors alongside the financial information in their financial statements.

Riley Lanfear, Rebecca Hale, Kitty Lohse, Sarah Godsey, Amy Burgin

Subject: *Biological & Natural Sciences*   Poster #34

Diel patterns of greenhouse gas emissions from a montane intermittent stream during the seasonal flow recession

Streams and rivers account for roughly 85% of carbon dioxide emissions from inland waters, but estimates of greenhouse gas (GHG) emissions from streams often fail to account for intermittency, or temporary drying . Unlike perennial streams, intermittent streams undergo hydrologic transition periods such as drying and rewetting, which can have outsized emissions compared to other times). Additionally, most streams are studied during the day, but nocturnal GHG emissions are variable and often higher than daytime emissions . Sampling at higher temporal resolution is needed to capture GHG pulses during hydrologic transition moments. To improve seasonal estimates of GHG emissions from non-perennial streams, chamber gas flux measurements, dissolved gasses, and water chemistry were measured during 3 diel campaigns in June, July, and August of 2022 in Gibson Jack Creek, Pocatello, Idaho. During each diel campaign, one perennial site and one intermittent site were sampled every 2 hours for 26 hours. We hypothesized that diel variability in GHG emissions would be greater at intermittent sites than at perennial sites, and that hydrologic transition moments would have the greatest overall emissions. Additionally, we expected that substantial releases of methane and nitrous oxide would only come from drydown of pooled environments, since a lower gas transfer velocity decreases oxygen availability in the water column and sediments, inciting anaerobic processes such as denitrification and methanogenesis. Preliminary results suggest nutrient and organic matter concentrations increased as water levels fell, which may provide fuel for increased microbial production of greenhouse gases. This research will provide evidence towards key drivers of GHG flux rates from non-perennial streams during both dry and wet periods, which could help future sampling design for efficient upscaling of flux measurements.

Ailun Li, Joshua Swift

Subject: *Health, Nutrition & Clinical Sciences*

Psychotherapy Help-seeking Intentions and Preferences among K-12 Teachers in Taiwan

The Taiwanese culture, like that of many other East Asian nations, highly values education and academic achievement. Given this, K-12 teachers in Taiwan often experience high levels of pressure to help their students succeed in their academic performance. This pressure frequently leads to psychological distress and mental health concerns. However, these teachers usually do not seek out any form of professional mental health help. The purpose of this study was to more closely examine Taiwanese K-12 teachers' attitudes and preferences for seeking psychotherapy. Data were collected from 150 K-12 teachers. Specifically, these teachers were asked to report on their preferences for different types of mental health interventions (individual psychotherapy, group psychotherapy, educational pamphlet, educational video, educational workshop) as well as their intentions to seek psychotherapy depending on the referral source by which it was recommended (boss, friend, intimate partner, other teachers, parent, student). A significant difference in preferences for the five different types of interventions was found ($p < .001$), with the strongest preferences being held for individual psychotherapy and the weakest preferences being held for group psychotherapy. A significant difference in intentions to seek treatment based on the referral source was also found ($p < .001$), with the weakest intentions being based on a referral from a boss or student.

The results of this study have implications for encouraging treatment-seeking in Taiwanese K-12 teachers when they experience a mental health need.

Brianna Lords

Subject: *Humanities, Behavioral & Social Sciences*

Wolves in Comics

Gray wolves (Canis lupus) are a highly controversial species with a complicated history. Specifically, wolves in North America have gone from being big bad villains to ecological heroes. With opinions still divided on wolves and their position in North American ecosystems precarious, it is essential to understand the basis for people's bias for or against wolves. Stories about wolves can contribute to opinions about wolves, and stories don't always paint the most accurate picture. Demonizing and deifying any animal can have severe consequences regarding management and conservation, so it is crucial to acknowledge how stories can affect people's opinions which can ultimately affect policy. This work specifically focuses on comics as a medium and how wolves are portrayed in comics. Seven comics are analyzed in this work, three of which are Indigenous works and the other four are Euro-American works. Evaluative coding is used to assess how scientifically accurate the work is, the type of portrayal of wolves (positive, negative, or neutral), and how much the comic is based on Euro-American culture and ideas about wolves. The rhetorical situation and multimodal rhetorical principles are applied to the comics to analyze how images interact with the text to provide a more complex portrayal of wolves. The comics that had a larger Euro-American bias tended to be less scientifically accurate and had more negative portrayals of wolves. The Indigenous comics were more neutral in their representation of wolves and moderately scientifically accurate. Comics that were more scientifically accurate were less based on Euro-American ideas and were positive or neutral in their portrayal of wolves. Overall, it appears that there are some trends with these three factors and that comics provide a unique opportunity for more complexity about wolves to be represented by combining images with text as they both contribute something different.

Allison Loyola, Prabha Awale

Subject: *Biological & Natural Sciences*   Poster #2

The antiepileptic drug valproic acid alters microglial number in early postnatal brain development in the valproic acid model of autism

Autism spectrum disorder (ASD) a neurodevelopmental condition affecting approximately 1 in 44 children in North America is thought to be a connectivity disorder. Valproic acid (VPA) is a multi-target drug widely used to treat epilepsy. It is also a teratogen as well as a histone deacetylase inhibitor and fetal exposure to VPA increases the risk of ASD. While the VPA model has been well characterized for behavioral and neuronal deficits including hyperconnectivity, microglia the principal immune cells of CNS that regulate dendrite and synapse formation during early brain development, have not been well characterized and may provide potential hints regarding the etiology of this disorder. Therefore, in this study, we determined the effect of prenatal exposure to VPA on microglial numbers during early postnatal brain development. We found that prenatal exposure to VPA causes a significant reduction in the number of microglia in the primary motor cortex (PMC) during early postnatal brain development particularly at postnatal day 6 (P6) and postnatal day 10 (P10) in male mice. The early microglial reduction in the VPA model coincides with active cortical synaptogenesis and is significant because it may potentially play a role in mediating impaired connectivity in ASD.

Joshua Luker, Ritesh Yadav, Joshua Luker

Subject: *Business, Economics & Public Administration*

Good Friends in Adverse Places: Close Confidants in Bad Workplaces

Both books such as Band of Brothers (Ambrose, 2017) and research evidence (e.g., Elder & Clipp, 1988; Nevarez, Yee, & Waldinger, 2017) suggest that uniquely close friendships often emerge to help individuals cope with the brutality of war. Some workplaces, unfortunately, can feel like "war zones" that subject workers to hostile situations (Itzkovich & Heilbrunn, 2016; McLinton, Drury, Masocha, Savelsberg, Martin, & Lushington, 2020). Traditionally, individuals' reactions to stressful workplaces have been conceptualized in terms of "fight or flight" responses (Hom, Mitchell, Lee, & Griffeth, 2012). However, the "tend and befriend" perspective (Taylor, 2011) suggests that when confronted with stressful situations, humans may seek support from others (Baumeister & Leary, 2017), particularly those who are experiencing similar threats (Li, Halterman, Cason, Knight, & Maner, 2008). In this study, we investigate whether, even after the COVID-19 pandemic and the "great resignation" (Laskowski-Jones & Castner, 2022), bad workplaces drive workers to seek close confidant friendships with colleagues at work. To investigate this question, we constructed an experimental study using scenarios modeled after questions the General Social Survey (GSS), a nationally representative, cross-sectional survey administered every two years by the National Opinion Research Center at the University of Chicago (Marsden, Hout, & Smith, 2020). We ask respondents to imagine one of three workplace scenarios: "hot" workplaces (e.g., overt verbal threats or physical intimidation), "cold" workplaces (e.g., "microaggressions,"), or neutral workplaces. We then ask them who they would likely turn to for social support to cope with that workplace (e.g., family members, colleagues at work, other friends, etc.). As we conclude collecting and analyzing the data, our interest is in discovering whether the type of adverse workplace environment is systematically associated with a greater likelihood of seeking out co-workers as mutual sources of social support.

Madison Mancini

Subject: *Business, Economics & Public Administration*   Poster #42

Increasing Leader Member Exchange through Social Exchange Theory

As communities return to work in the post-pandemic era of the early 2020's, the education field remains to be notably impacted with unemployment and voluntary exits. An epidemic of organizational burnout across the United States is dramatically affecting education retention rates. The purpose of this research is to improve organizational communication by strengthening the Leader Member Exchange (LMX). Incorporating support from Social Exchange Theory, which integrates the perspectives of obligation in mutual dependence in any relationship or exchange. In an effort to improve retention rates when financial incentives or other employee benefits are unavailable it is crucial to improve the morale through Leader Member Exchange (LMX). Utilizing survey research distributed to staff in an educational organization this research examines key phrases which are designed to improve organizational morale. The survey consists of a demographics section and thirteen subjective response questions which gather data based on the frequency of respondents choices. Specific phrases are tested to gain insight toward how administration can improve communication to motivate employees. The survey data is proposed to demonstrate communication techniques which administration and leadership can use to improve the LMX and aid employee retention rates in the educational organization. A two part survey was sent to educational staff within an educational organization. The survey consists of a demographics section and thirteen subjective response questions which gather data based on the frequency of respondents choices.

Kelsi McDermott

Subject: *Engineering, Physical & Mathematical Sciences*   Poster #19

The Use of Charged Monomers to Create Water Soluble Polysulfides for Heavy Metal Removal

Water quality has been and will continue to be an area of concern for environmental regulation. The presence of toxic heavy metals as a result of industrialization leaves the general public susceptible to hazardous amounts of these contaminants. Inverse vulcanization has led to an increase in the production of polysulfide copolymers using a variety of crosslinkers, allowing the products to be used for an assortment of applications. However due to the high sulfur content (50-90%) and the common use of hydrophobic monomers these polymers are completely water insoluble, limiting their uses. The purpose of this project is to create water soluble polymers capable of binding to and removing heavy metals from solution through the incorporation of charged monomers with sulfur. Polymers were formed by stirring the combined reactants at 160 °C for 30 minutes, then increasing the temperature to 200 °C and holding for an additional 30 minutes. Products were characterized using 1H NMR to determine the degree of polymerization. Water solubility testing was performed on fully polymerized products. Water soluble polymers were then combined with a mixed metals solution and inductively coupled plasma-mass spectrometry (ICP-MS) was used to calculate the amount of metal removed. Polymers formed through the incorporation of ammonium-based monomers produced products with increased water solubility and allowed anionic and zwitterionic monomers to be successfully polymerized. The resulting polymers could remove moderate to high amounts of several metal ions, including gold, iron, cadmium, zinc, lead, and copper. By varying the amount of positive and negatively charged monomers, we were able to compare the differences in water solubility, metal removal, and determine the role of charge and the overall charge dispersion. Incorporating various charged monomers provides a low cost, straightforward method to producing water soluble polymers capable of removing a variety of metal ions from solution.

Tyler Moerer

Subject: *Education, Learning & Training*   Poster #35

Examining Overtraining Syndrome within College Esports

E-sports have grown tremendously in popularity with over 170 colleges and universities offering esports programs today (Murray et al, 2021). Despite this there is very little research on collegiate esports. Similar to traditional sports such as basketball and baseball, esports athletes experience a variety of stressors that can lead to mental disorders. A commonly researched topic is burnout, or the athlete's complete removal from the sport. Overtraining syndrome (OTS) is a precursor to burnout. OTS is categorized as periods of intense training that are not followed up by proper rest time which results in a decrease in performance that last more than four weeks. This decrease in performance is usually accompanied by a variety of other symptoms such as fatigue, poor sleep, and changes in mood. Within traditional sports the prevalence rates range from 25-35% (Winsley, 2017), however prior research suggests that low physically demanding sports have significantly lower rates (Kentta, 2001). This study surveyed 19 participants of a Big Sky esport program trying to understand prevalence rates of overtraining syndrome among esport participants. This study also utilized questions from the NCAA 2019 GOALS study to gather descriptive statistics on the esport student athlete to compare to traditional athletes. This study found that 26% of participants had experienced overtraining syndrome at some point in their careers. In regards to the NCAA study, a variety of similarities and differences were found between esports and their traditional sport peers regarding how participants utilize time and how participants chose their university. This study found found similar rates of overtraining syndrome to their traditional sport counterparts, however more research needs to be done within college esports to test this further.

Zayed Mohammad, Andrew Chrysler

Subject: *Engineering, Physical & Mathematical Sciences*   Poster #22

Slotted Waveguide for High Dielectric Heating

A longitudinally slotted waveguide (LSWG) for high dielectric (εr = 10) heating applications has been designed and investigated. The purpose of this work is to design a slotted waveguide that can be used in industries for drying grains, which have high dielectric values. The effect of the key design parameters of this LSWG, specifically the slot length SL and the offset distance SC were examined using CST Microwave Studio Suite. When SL and SC are varied the waveguide resonates at a different frequency. The SL has a noticeable effect on the resonance frequency, whereas, the SC has a limited effect. For industrial usage, the waveguide needs to operate at 2.45 GHz. And for the SL of 20.8 mm and SC of 4.5 mm, our waveguide resonates at our designed frequency. In this work, we discuss the characteristics of an LSWG for high-dielectric heating purposes. The key design parameters were varied to observe their effect on the output of the LSWG. Finally, we discovered the actual SL and SC for which our designed waveguide will operate at our designed frequency.

Colleen Murray, James Groome, Sydnie Clark

Subject: *Biological & Natural Sciences*

Modeling the Effects of Sodium Ion Channel Mutations in Skeletal Muscle Fibers

Voltage-gated sodium ion channels are a critical component of excitable cells such as neurons, skeletal muscle fibers, and cardiac muscle (1). These tissues require ion channel activity to initiate and propagate electrical signals, called action potentials, enabling voluntary movement of skeletal muscle. Mutations in sodium channel genes can interfere with excitability and inhibit muscle movement (2). These effects are exacerbated in patients with low serum potassium, or hypokalemia, in the disease hypokalemic periodic paralysis (HypoPP; 3). A novel mutation in the skeletal muscle sodium channel, K1126I, has been identified in a patient with HypoPP but has not yet been causally linked to the disorder. A computational model was built using MATLAB to simulate excitability in normal and mutated muscle fibers. Parameters obtained from electrophysiology experiments were applied to simulate sodium channel mutations like K1126I and others known to cause HypoPP. The model output was used to identify the impact of mutations on muscle fiber excitability and their potential contribution to paralytic attacks. The model successfully simulated the alterations in excitability observed in muscle fiber biopsies from patients with HypoPP (4). Preliminary results suggest K1126I may decrease excitability, though the effect of this mutation in conjunction with low serum potassium has yet to be investigated. Further simulations will be built to model the effects of K1126I with hypokalemia as a possible route to HypoPP. These simulations will incorporate additional parameters to represent behavior of the system more accurately in the context of this mutation. Results will be applied to the model of excitability to establish the roles of K1126I and hypokalemia in HypoPP.

Brooks Myers, Donna Delparte

Subject: *Biological & Natural Sciences*   Poster #8

Identifying Fine-Scale Qualities of Greater Sage-grouse (Centrocercus urophasianus) Habitat Using Natural Color and Multispectral UAS Imagery

Anthropogenic disturbance to the sagebrush biome in North America has significantly degraded sagebrush habitat; estimates indicate that sagebrush may occupy as little as 55% of its pre-settlement potential extent. The sagebrush biome provides habitat for more than 350 species of conservation concern, including the Greater Sage-grouse (Centrocercus urophasianus, hereafter sage-grouse) which relies entirely on sagebrush for multiple life history stages. The primary goal of this project is to utilize emerging technology to advance the knowledge of sage-grouse habitat selection. The two objectives of this project are to 1) explore

fine-scale qualities of Sage-grouse habitat, and 2) conduct land cover classification of sage-grouse habitat. This project will utilize uncrewed aerial systems (UAS)-derived natural color imagery and Structure-from-motion Photogrammetry (SfM) to create 3D habitat models which will be used to measure topographic characteristics such as terrain ruggedness, and vegetal characteristics such as vegetation density and height. UAS- and satellite-derived multispectral imagery will be integrated with a Neural Network machine learning algorithm to evaluate land cover composition and heterogeneity. Results from this project will provide researchers with a novel approach to monitor the effects of ecosystem change and actionable information to inform future conservation and restoration efforts.

Suman Neupane

Subject: *Engineering, Physical & Mathematical Sciences*   Poster #39

Effect of dielectric constant on indoor localization of different fruits and vegetables exploiting RFID tags

This paper presents RFID localization of three different fruits and vegetables: cantaloupe, pineapple, and cabbage. 32 Passive RFID tags are used to collect received signal strength indicator (RSSI) value. The collected data is analyzed with different machine learning algorithms. Results show that as the dielectric value increases the location accuracy increases. The localization accuracy of 79.9 % and 78.3% is achieved for cabbage and pineapple respectively. whereas the accuracy of only 57.1% is achieved for cantaloupe. As dielectric increases the indoor localization accuracy increases for different fruits and vegetables.

Jeffrey Okojie, Sarah McCollum, Jared Barrott

Subject: *Biological & Natural Sciences*   Poster #18

Developing a radioimmunotherapy for Synovial sarcoma

Synovial sarcoma is a rare form of cancer that occurs in the soft tissue adjacent to bones in adolescents and young adults. This cancer is poorly understood due to limited studies on the disease, resulting in poor prognosis, especially when metastasis has occurred. The current treatment options for this cancer are surgery, radiation, and chemotherapy. Unfortunately by the time the cancer is usually diagnosed metastasis has already occurred, leaving radiation and chemotherapy as the only options and these tend to have severe side effects. In this work, we sought to develop a new noninvasive radioimmunotherapy for the treatment, diagnosis (theranostic), and monitoring of synovial sarcoma with limited side effects by targeting Oncostatin M Receptor (OSMR). Oncostatin M Receptor (OSMR), is a receptor that when activated by its ligand Oncostatin M(OSM), has been shown to be involved in cancer proliferation and migration and to be highly expressed in various cancers including synovial sarcoma. We hypothesized that by targeting OSMR we will be able to develop a noninvasive radioimmunotherapy for synovial sarcoma. In this work, we conjugated an anti-OSMR antibody with a fluorophore to determine the possibility of using an anti-OSMR radioimmunoconjugate as a therapeutic option for this cancer. We then conjugated the anti-Osmr in two methods, stochastically and site-specifically, in order to determine the best method of conjugation. An anti-OSMR conjugated to a fluorophore (AFC) was able to bind to OSMR-expressing cell lines. The AFC also targeted OSMR-expressing tumors in a synovial sarcoma mouse model. An anti-OSMR conjugate can be used in developing radioimmunotherapy for synovial sarcoma and by exploring the two methods of conjugation, we will be able to develop a novel radioimmunoconjugate for synovial sarcoma.

Reuben Opoku, Crystal Lovato, Julia Martin

Subject: *Biological & Natural Sciences*

Calcium rescue of pneumococcal manganese sensitive cells is not via reduction of intracellular manganese levels

Manganese (Mn) is both essential for viability and toxic in excess to bacteria, including Streptococcus pneumoniae (pneumococcus). Previous research has uncovered proteins involved in maintaining Mn homeostasis, as well as enzymes that can bind Mn. For some of these enzymes, Mn serves as a cofactor; in others, mismetallation with Mn leads to inactivation or poor activity. Here we show that pneumococcal Mn-sensitive cells (ΔmntE) lacking the Mn-specific efflux transporter MntE are rescued in a calcium (Ca) dependent manner. Further analysis, reveals that cell-associated Mn levels are not significantly altered by exogenous Ca and that Mn levels remain elevated for ΔmntE cells during Mn-stress. These data are consistent with no significant change in pneumococcal capsule production, which is modulated by cellular Mn homeostatic levels and can thus serve as a read-out for Mn intoxication in pneumococcus. To further investigate how exogenous Ca rescues growth of pneumococcus during Mn-stress, total RNA was extracted from cells grown with or without Ca and Mn and sent for differential RNA-seq analysis. The MDS plot of overall gene expression levels revealed no significant difference for wildtype cells for all treatments. ΔmntE mutants were significantly different than all wildtype cells. ΔmntE cells grown with Ca clustered closer towards that of the wildtype cells, suggesting Ca impacts pneumococcal metabolism. Additional analysis is ongoing to identify specific genes that are differentially expressed that likely contribute to the role of Ca during Mn intoxication. These data ultimately reveal a new link between Mn and Ca in bacteria growth and likely virulence, as both cations can serve as important signaling molecules during pathogenesis of pneumococcus in the mammalian host.

Lexy Packer

Subject: *Health, Nutrition & Clinical Sciences*   Poster #26

Culturally Competent Sexual Education Program for South East Idaho Youth

Teens and young adults are not receiving the proper resources to engage in healthy relationships. Our programs aim to provide comprehensive sexual education that prepares teens to develop and maintain healthy relationships. The research shows a personalized comprehensive sex education criteria that fits the cultural needs of the individual and community better prepares adolescents for current and future relationships. This approach is more effective at promoting healthy bonds. Our program focuses on the native American population, children of Latino immigrants and the church of Jesus Christ of latter-day saints' members, in the Pocatello area. By creating an appropriate curriculum focused on healthy communication skills, physical and psychological risk factor of sex, safe sex practices, and healthy relationship indicators, we believe that students will have healthier relationship, increased knowledge of safe sex practices including contraceptive use, disease prevention, and risk factors for disease.
Program design not a study

Kiran Pandey

Subject: *Engineering, Physical & Mathematical Sciences*   Poster #24

Localization of Partial Discharges in Power Transformers during Factory Acceptance Testing

This research explores the detection and localization of partial discharge (PD) activity in power transformers during factory acceptance testing (FAT) of transformer. PD can lead to transformer failure, so identifying and locating it is crucial for safe power system operation. Conventional monitoring methods during FAT do not provide clear information on PD location, hence alternative methods such as acoustic emission (AE) and ultra high frequency (UHF) sensors are being explored.

This study proposes a system using AE sensors for the accurate detection and localization of PD activity. The system involves proper classification of PD sources based on waveform of pulse current and PD, followed by application of AE sensors. An experimental setup using AE sensors was designed, implemented and tested during FAT of power transformers, resulting in effective PD detection and localization.

The use of AE sensors can provide valuable information on transformer insulation condition, helping in maintenance and repair decisions. AE sensor technology can be a useful tool for assessing transformer insulation condition, particularly for detecting and localizing PD activity. The results highlight the potential of AE sensors for early PD detection and localization, and the importance of ongoing research in this area. Ultimately, the proposed system can improve transformer reliability and reduce the risk of failure.

Durga Parajuli, Arya Ebrahimpour, Bruce Savage

Subject: *Engineering, Physical & Mathematical Sciences*   Poster #12

Finite Element Analysis of High-Pressure Compressed Air Energy Storage Tank

A Compressed Air Energy Storage System (CAES) is a battery system in which energy is stored in the form of compressed air under high pressure. CAES has advantages over traditional pumped storage of a smaller footprint, lower system losses, and the ability to be used as distributed versus grid storage. The hybrid air/water-CAES in this research project is a 198 in. steel cylindrical tank with 39 smaller steel 17-inch cylindrical compartments inside. The space between the steel cylinders is filled with Ultra-High-Performance Concrete (UHPC) to help carry the load, provide a thermal sink for the compressible air and act as a safety barrier. Modeling the tank in AutoCAD, ANSYS Workbench is used to complete a finite element analysis under an internal pressure of 3,000 psi. A symmetric quarter cross-section model with half height is modeled with boundary conditions on the planes of symmetry. A neoprene material is used as a numerical technique to decouple the steel/concrete materials. To verify the stress convergence, the model is analyzed with different mesh sizes for the UHPC. The mesh sizes in the neoprene rubber and steel are 1 in. and 2 in., respectively. For the UHPC, mesh sizes of 2 in., 2.5 in., 3 in., 3.5 in., 4 in., and 4.5 in. are used in six different models. The UHPC tensile stresses did not change significantly with the size of the mesh. Finally, the full model is analyzed with the 4.5 in. mesh size for the UHPC. The results from the full model show that the tensile stress in UHPC is maximum at the midsection and gradually decreases towards the ends of the vessel. Using a factor of safety of 2.5, as recommended by the ASME Boiler & Pressure Vessel Code, the stresses in the steel and UHPC remain within the corresponding allowable values.

Pamela Pascali

Subject: *Creative Works*

Idaho's Obsidian History: Tools and Technology, a learning module for 4th grade

4th grade Idaho history teaching module showcasing Idaho's obsidian and stone tool technology by Indigenous people who lived across the Snake River Plain. This project includes a curriculum design, and items on loan from the IMNH education department.

Pamela Pascali

Subject: *Humanities, Behavioral & Social Sciences*

Factors Influencing Prehistoric Obsidian Procurement and Use in and around the Snake River Plain, Idaho

Owing to its volcanic past, over 30 tool-quality obsidian sources (quarries) can be found across the Snake River Plain in southern Idaho and the Yellowstone-Teton region. This material was widely used in prehistory, and some of this material was transported as far away as the Ohio River Valley. In order to better understand the utilization of these lithic materials through time, I will study and evaluate their material properties and performance characteristics, and compare this data to their changing temporal and geographic distributions. By performing chemical analysis, surface roughness, and hardness testing I will determine if the obsidian we find most often in the archaeological record matches the highest quality locations. Portable X-Ray Fluorescence (pXRF), Laser Ablation Inductively Coupled Plasma-Mass Spectroscopy (LA-ICP-MS), and surface profilometry. Preliminary results confirm my predictions. I predict that with an equivalent distance to obsidian sources, material which possesses greater textural homogeneity and reduced surface roughness will be preferentially selected for use. These represent more predictable materials, and their frequency of use should increase through time, as obsidian sources are discovered and exploited.

Chloe Pedersen-San Miguel, Tera Letzring

Subject: *Humanities, Behavioral & Social Sciences*   Poster #7

Personality Cues on Instagram and Twitter: A Lens Model Analysis

This study builds on findings that individuals can accurately judge the personalities of strangers based on Instagram or Twitter profiles. Differences in normativity and distinctive accuracy emerged for individual traits between platforms, prompting two research questions. 1) What personality cues are available on each platform? 2) What personality cues are utilized by judges on each platform? Using lens model analysis, this study examines a wide variety of cues present on social media profiles, such as degree of anonymity, number of following/followers, social interaction with other users, emoticon/emoji use, number of images featuring the self or the self and others, level of positivity/negativity, "textspeak," spelling errors, swear words, and social topics present within written content.

Makenzie Peterson

Subject: *Humanities, Behavioral & Social Sciences*   Poster #28

The impact of Online Relationship Social Comparisons on the Well-being of Singles

Individuals can make social comparisons easily, quickly, and frequently on commonly used social networking sites such as Facebook. Prior research has shown that upward and downward social comparisons to romantic relationships on social media can affect relationship satisfaction and well-being of individuals in romantic relationships. The present study extended past research by examining the effects of romantic relationship social comparisons on single individuals. 177 participants were randomized into either an upward or downward social comparison group, then completed social comparison, well-being, social media use, and satisfaction with relationship status measures. Those in the downward condition exhibited significantly higher social comparison scores than those in the upward condition, however, no other significant differences emerged between groups. Our results indicate that while singles' social comparison can be manipulated effectively, they may be too different from those in relationships to replicate effects on well-being and satisfaction with relationship status.

Julia Phelps, Alyssa Cruz

Subject: *Health, Nutrition & Clinical Sciences*   Poster #20

Barriers to Accessing Mental Health Services in Idaho Among Rural Latino Populations

The Latino community is the largest growing minority population in the United States and Idaho. This poster aims to bring awareness to the barriers that members of the Latino community face when accessing mental health services. Furthermore, it strives to enhance multicultural competence in counselors through awareness of this topic. Methods include a review of the existing literature in a mental health fields including psychology, counseling, social work, as well as rural health more generally. Through the literature review, we found both client and provider barriers that prevent access to mental health services among the Latino population. We define client barriers as the systemic and cultural elements which impede access and use of mental health services by the latin population. We define provider barriers as the obstacles that limit the efficacy and quality of care that mental health practitioners provide. Client barriers include: lack of financial resources, inaccessibility in terms of time and location, lack of insurance, immigration status and fear of deportation, language barriers, acculturation and cultural bias, and stigma. Provider barriers include: Lack of cultural competence training, barriers to communication including language and health literacy, cultural biases, lack of interest, ignorance of population. The dearth of research in mental health fields demonstrates how marginalized the population is. Furthermore, some of the research that does exist is unclear, inconsistent, inaccurate or ambiguous. The lack of consistent research on the topic as well as the client and provider barriers found in existing literature demonstrate the challenges that many members of the Latino community face when accessing mental health resources in Idaho. As the largest growing minority group in Idaho which also provides many of the labor workers to the Idaho agricultural economy, one can see that not only the people are suffering but the industry they support is suffering too.

Md Fazle Rabbi, Arifa Islam Champa, Minhaz Zibran

Subject: *Engineering, Physical & Mathematical Sciences*   Poster #30

Phishing Email Detection using Machine Learning and Natural Language Processing

Phishing, a type of cyberattack using fake emails, can be difficult to recognize due to sophisticated techniques employed by attackers. In our work, we use a natural language processing and machine learning approach for detecting phishing emails from legitimate ones. We choose two phishing email datasets, TREC 2007 [1] and Ling-spam [2], from publicly available sources. The first step is to fine tune the datasets for analysis through data preprocessing. The preprocessed data is then fed into six ML algorithms such as Logistic Regression, K-Nearest Neighbors, AdaBoost, Multinomial Naive Bayes, Gradient Boosting and Random Forest, and the resulting models are evaluated using a set of established performance metrics.

The results showed that the Random Forest algorithm performed well in both the Ling Spam and TREC 2007 datasets for minimizing false negative predictions, and the inclusion of the subject feature improved the performance of the machine learning models for detecting phishing emails. We train six different Machine Learning algorithms using only the 'subject' and 'message' features of Ling and TREC 2007 datasets. We then compare their classification performance to evaluate the effectiveness of these algorithms.

Arina Ranjit, Sana Khajeh Pour, Ali Aghazadeh Habashi

Subject: *Health, Nutrition & Clinical Sciences*   Poster #4

Improving Anti-Arthritic Effects of Novokinin through Bisphosphonate Conjugation

The renin-angiotensin system (RAS) is an intricate endocrine cascade that elicits diverse biological functions. Angiotensin II (Ang II), a central component of the RAS, mediates inflammatory diseases by binding to the Angiotensin type I receptor (AT1R). In contrast, it's binding to Angiotensin type II receptor (AT2R) provides functional antagonism to AT1R axes. Novokinin, a synthetic peptide, is known to elicit vasodilatory, anorexigenic, anti-opioid, and anti-inflammatory action through AT2R. Despite its multitude of

therapeutic effects, peptide drugs like novokinin fall short in drug development due to their plasma instability. Hence, we have developed a novel bone-targeting novokinin conjugate (Novo Conj), which binds to the bone through bisphosphonate, and utilizes it as a reservoir while protecting it from enzymatic and hydrolytic degradation. We have outlined three objectives for this proposed study (i) synthesize, characterize, and test stability and bone binding ability, (ii) define pharmacokinetics, and (iii) test and compare the in vivo biological activity of conjugated and native peptides in rheumatoid arthritis (RA) rat model.

Noemi Rivas

Subject: *Health, Nutrition & Clinical Sciences*   Poster #31

Assessment of Access to Healthcare for Latino Farmworkers in Eastern Idaho

Background: Access to healthcare for Latino farmworkers has become an increasing concern in several rural communities around the United States, the Latino farm working population in Eastern Idaho, nonetheless. A project was undertaken to better understand healthcare concerns in Latino farmworkers and use existing evidence to recommend changes to current practice.

Purpose: The purpose of this project was to identify feasibility of a mobile health clinic to increase access to care for Latino farmworkers. Despite the needs of Latino farmworkers, limited data exists regarding this population in Eastern Idaho.

Methods: A mixed methods approach was used which included a farmworker survey, a management-level farmworker survey and a standardized telephone interview with existing mobile health clinics serving >50% Latinos.

Results: The surveys revealed that a mobile health clinic would be widely accepted in this Latino farmworker population. Interviews with mobile health clinics demonstrated success of this type of model for serving the Latino farmworker population.

Discussion: These results demonstrated acceptance and feasibility of a mobile health clinic as a way to increase access to care for Latino farmworkers in an eastern Idaho farming community. This information will be used to provide a foundation for moving toward actualization of a mobile health clinic to serve Latino farmworkers in this region of eastern Idaho.

Kathleen Rodgers

Subject: *Health, Nutrition & Clinical Sciences*

Examining the Role of Quality Improvement and the ECHO Model to Increase Rates of Pediatric Autism Screening in Idaho

The Extension for Community Healthcare Outcomes (ECHO) model has been used to improve health care team knowledge about complex diseases across the world. Few ECHO-related research projects understand to what extent practice change occurs because of the intervention. Quality improvement education initiatives pose opportunities to track and measure provider competence and performance change when used in combination with the ECHO model. The University of Missouri piloted a project that engaged a cohort of primary care providers in a quality improvement ECHO project that improved the rate Missouri-based cohort members employed recommended developmental screening tools at 18- and 24-month well-child visits in 2019. This research project assesses practice change from an adapted quality improvement ECHO project in Idaho in 2022 and aims to understand the underlying group and individual dynamics that lead to system and individual change. Outcomes from this research project will be assessed through a mixed methods approach using a series of surveys and feedback gathered throughout the project implementation period and will inform whether quality improvement ECHO projects improve developmental screening among primary care providers in Idaho. A series of surveys were employed during the project

period to collect data regarding change in performance, knowledge, and perceptions of self-efficacy. Data analysis is in process and results are currently pending. It is anticipated that results will be ready to be presented by March 15.

Ujwal Sharma, Uma Shankar Medasetti

Subject: *Engineering, Physical & Mathematical Sciences*   Poster #27

A Review of Mobile Robot Technology for Security Applications at Nuclear Facilities

Due to the rising operation and maintenance costs of nuclear power plants (NPPs) in the United States, utilities are struggling to keep them operational. This is largely because of the low cost of natural gas and the increase in wind and solar energy production, which has lowered the price of electricity. The cost of protecting NPPs accounts for approximately 7% of the total cost of power generation, with half of this being attributed to labor costs. Physical security personnel makes up nearly 20% of the workforce at various NPPs, and as labor costs continue to rise, it is important to deduce ways to reduce this cost. This research aims to explore a new approach to physical security by replacing the current labor-intensive methods with a technology-focused approach using mobile and automated robots. Human-robot interaction in physical security applications is the primary focus here. Among all the available mobile robots such as legged robots, wheeled robots, drones, and others, we are planning on using the four-legged dog robots because of their ability to walk in unleveled environments such as climbing hills or climbing up/going down the stairs, walking on swamps, and many more. Current dog robots have factory-inbuilt basic sensors for balance, obstacle avoidance, and object detection, but they are not specifically designed for security. Thus, using dog robots to detect and protect against unauthorized entry of people or animals into a nuclear power plant requires incorporating additional sensors into the current dog robot platforms, and our research aims at doing the same to create the dog-robot for NPP security. The first phase of the research will include reviewing the literature on the use of dog robots in infrastructure security and remote inspection tasks in human-robot collaboration.

Olivia Stanley

Subject: *Engineering, Physical & Mathematical Sciences*

Rock Glacier Distribution and Implications for Alpine Hydrology in the Northern Rocky Mountains

The meltwaters of annual snowpack and pure-ice glaciers have long been recognized as vital contributors to arid, high mountain water budgets. However, the role of rock glaciers as persistent alpine water reservoirs has been largely overlooked. Understanding the hydrologic significance of rock glaciers including flow patterns, annual discharge rates, and the biogeochemical characteristics of the meltwaters is necessary for informing effective water resource management and cold-water ecology preservation through the coming century. This study seeks to contribute to the greater body of rock glacier hydrology research by developing a regional inventory of rock glaciers and characterizing meltwater streams in the central Idaho mountains.

I will monitor discharge, water temperature, and ambient air temperature of 10 central Idaho mountain streams through the main flow period of May-October to develop a hydrologic dataset that aids in understanding water storage and meltwater ecological suitability. Half of the streams will be fed by rock glaciers and half by simple snowpack to provide a robust comparison of flow patterns. I will also characterize the hydrochemistry of the streams by collecting samples for elemental analysis. This data will clarify water flow through residence times within the system and seasonality of recharge. Finally, to understand residence times of ancient carbon within the rock glacier system, we will collect biofilm samples for radiocarbon dating. C analysis will also inform conclusions about the ecological significance of these streams as unique cold-water habitats. I hypothesize 1.) stream persistence is a characteristic feature of rock glacier streams that fundamentally contrasts with snowmelt streams, 2.) rock glacier meltwaters will

demonstrate unique chemistry in comparison to snowmelt-fed streams, 3.) rock glacier outlet streams are reservoirs of ancient carbon. These results will resolve questions about climate change persistence, water storage and hydropower potential, meltwater hydrochemistry, and ancient carbon export generally absent from the literature.

Allegra Sundstrom, Morey Burnham

Subject: *Humanities, Behavioral & Social Sciences*   Poster #1

Making Sense of Livestock-Grizzly Conflict in Southwest Montana: Ranchers' Perspectives on Conflict-Reduction Influenced by Broader Social Landscape Shifts

As grizzly bear populations have recovered and continue to expand across the rangelands of southwest Montana, ranchers and their livestock are interacting with bears at higher rates. Ranching communities are simultaneously experiencing other changes happening across the landscape; fluctuating drought conditions, shifting patterns of wildlife's use of the land, increased second-home ownership and amenity migration, and associated community cultural shifts that challenge ranchers' sense of belonging and sense of place. Human-wildlife interactions are embedded in human-human interactions. With such rapid socio-cultural changes happening in southwest Montana, on top of the multidimensional landscape changes listed above, the policy and management of predators and endangered species is often contested. Thus, individuals conceptualize conflict with grizzly bears in a variety of ways. I sought to understand how ranchers, and other members of ranching communities in southwest Montana, perceive increasing grizzly presence and grizzly conflict-reduction tools, in light of and ranchers' broader social landscapes. I used Q-methodology to identify perspectives associated with grizzly conflict-reduction and increasing grizzly presence held by ranchers in southwest Montana that had participated in livestock-grizzly conflict-reduction efforts. I conducted 30 interviews with ranchers, range-riders, state and federal biologists, NGO-members and other local experts, and used the interview data to inform the Q-study and the selection Q-set statements. From 21 Q-sorts, I identify three perspectives about grizzly conflict-reduction on the landscape based on the Q-sort ranking data. The three factors are focused on: social divide, institutions, and holistic tolerance. The findings suggest that ranching communities throughout southwest Montana, who are often portrayed as a homogeneous group, make sense of livestock-grizzly conflict-reduction in diverse ways. By better understanding these three perspectives about conflict-reduction, we aim to contribute to broader discussions about coexisting with and living alongside grizzly bears.

Rifat Ara Tasnim, Farjana Eishita, Jon Armstrong, Eddie Ludema, Jeremy Russell

Subject: *Education, Learning & Training*   Poster #10

An Empirical Analysis to Examine the Disparate Impact of Distinct Background Music on Gameplay Experience

In modern video games, music has become an unavoidable component. Previous research showed that to fabricate the connection between games and players, music is inevitable. Each and every tune composed by the musician is unique and has a prospect to impact an individual's experience - be it in video games or any other medium. While it has been widely accepted that music has the power to impact people's minds, it is yet to discover the differential impact of distinct categories of tunes on players' gameplay experience. We have conducted a controlled experiment on 32 participants to investigate the impact of different in-game background music on the gameplay experience. We hypothesized that, different background music will deferentially impact players' gameplay experiences. For this experiment, in our lab, a 2D game, Fruit Pop, was developed playable on smartphones. Three original "Adaptive" soundtracks - 'Fruit Drop', 'Iced', and 'Soar' were created by the Music Department to utilize as background music for these games. Three identical versions of 'Fruit Pop' were created with three different background music. In each version, players confront a similar challenge with different background music. During the experiment, each participant was provided with 'Flowtime' a biosensing headband to track their brainwaves in real-time. After the session, each player's response was collected from Game Experience Questionnaire (GEQ) and Positive and Negative Affect Schedule (PANAS). The experimental outcome demonstrated that our three original pieces of music have a distinctive impact on an individual's gameplay experience. While a significant difference in experience was encountered through GEQ and PANAS, the EEG data remained quite on the flatter region. Our experiment unveils the positive impact of the music of different categories on the human mind during gameplay and demonstrated significant differences in gameplay experience in terms of competence, immersion, flow, tension, and challenge.

Henry Thomas

Subject: *Biological & Natural Sciences*

Azhdarchid pterosaur diversity in Late Cretaceous North America

Pterosaurs were a highly diverse group of flying reptiles that lived during the Mesozoic. In 1975, the giant azhdarchid pterosaur Quetzalcoatlus was named based on a partial wing from the Late Cretaceous (68-66 million years ago) Javelina Formation of Texas. Since then, other azhdarchid pterosaur fossils from across North America have been referred to Quetzalcoatlus. However, this was done with a preliminary understanding of the morphology of Quetzalcoatlus. A recent exhaustive study of the anatomy of Texan Quetzalcoatlus (Andres and Langston, 2021) allows a reassessment of referred fossils from elsewhere in North America. Here I reassess the anatomy of azhdarchid fossils from Late Cretaceous North America, with a particular focus on an azhdarchid cervical (neck) vertebra from the Hell Creek Formation of Montana. This specimen has been previously described and referred to Quetzalcoatlus (Henderson and Peterson 2006). Digitization of this specimen affords a more detailed assessment of its morphology than previously provided. I also coded these fossils into a phylogenetic analysis focused on toothless Cretaceous pterosaurs. The Hell Creek pterosaur displays a combination of characters not present in Quetzalcoatlus and unique across all known azhdarchid neck vertebrae, suggesting that the Hell Creek specimen represents a new medium-sized pterosaur species. The phylogenetic analysis recovered this taxon is not closely related to Quetzalcoatlus, and suggests that there is no evidence for the presence of Quetzalcoatlus outside of Maastrichtian Texas. Reappraisal of the Hell Creek specimen and other contemporary material reveals a high diversity of azhdarchids in Maastrichtian North America, with at minimum five distinct species being identifiable. This highlights the importance of revisiting old taxonomic assignments in the wake of newer

discoveries and studies, and demonstrates how diverse these flying reptiles were at the very end of the age of dinosaurs.

Shalissa Tomkinson, Jenifer Reader

Subject: *Health, Nutrition & Clinical Sciences*   Poster #17

Food Insecurity and the Student Athlete

Food insecurity among collegiate athletes is something that there is not a lot of research on. Research found stated it to be between 12.3% plus or minus 3.4%, which is higher than the national average of 10.5%. Research shows that some of the struggles with food insecurity in this population are: practice hours and competition conflicting with work opportunities and dining hall hours; increased nutrient and calorie needs; specific nutrient needs; stigma around food insecurity and athletes being considered a "privileged" group. The USDA's Adult Food Security Survey (10-item) was combined with 5 demographic questions (regarding gender, race/ethnicity, collegiate sport, living situation, and meal acquisition). The survey was distributed to all student athletes (N= 307) via email as a Qualtrics survey. The survey was open for 2 weeks. 48 of the athletes responded and only 45 of the responses were complete. This is only 14% of the total athletes at the university. The students were given the chance to enter a drawing for a gift basket filled with non-perishable food items. The total FI overall was 60%, 73% of that were female athletes. 62% lived off campus and 69 % consumed meals off campus. Members of the track and field and football teams were found to have significant association to FI. However, the risk was higher for football players compared to track athletes. Finally, 73% of athletes reported not eating for a whole day due to lack of access to enough food for one or two months. Food insecurity among student athletes at this university is higher than the general population of students. The higher demands on time for academia and athletics may put these student-athletes at a greater risk for FI. Further research could help accurately determine the prevalence of food security among this population.

Francis Whitfill

Subject: *Humanities, Behavioral & Social Sciences*

Breaking Censorship During the Spanish Literary Golden Age: The Case of Feminine Interests in the Works of Maria de Zayas, Ana Caro de Mallen and Sor Juana Ines de la Cruz

It is widely accepted that feminist thought finds its origins in the 19th Century. However, problems arise when attempting to classify the writings of early women writers who managed to subvert censorship and repressive measures to publish their works before this movement. During the 17th century--the Spanish Golden Age--great works were published that confronted the issues women faced, even as the writers of these works were required to submit their works for review by members of the clergy. While women like Santa Teresa de Jesus published works that fulfilled the purpose of religious instruction and guidance, works by other authors, such as Maria de Zayas, Ana Caro and Sor Juana pushed the norms of what would have been considered acceptable for a woman to write and discuss. This work seeks to understand how and why these authors were able to represent controversial topics, such as women's sexuality and gender roles. As feminist thought as such did not exist at the time, these works should have been quickly rejected for publication. Even so, this article explores how these authors called attention to the inequalities faced by women of the time period, used Baroque literary tools to criticize them, and took advantage of existing structures to subvert the norms of the 17th century, thus demonstrating a Transatlantic effort to expose the injustices with women were forced to contend. The work uses excerpts from the above-mentioned writers and scholarly articles to examine the topic. The work finds that, by taking advantage of existing literary norms, women writers were able to subvert Baroque societal expectations and publish topics that would have been considered controversial.

Jessica Woolley

Subject: *Humanities, Behavioral & Social Sciences*   Poster #23

"Tell Me a Real Story": Motherhood and Intertextuality

This paper will focus on two of Arundhati Roy's novels, The God of Small Things and The Ministry of Utmost Happiness. I analyze Roy's intertextual references in both novels to show how she uses intertextuality as a tool to challenge nationalist, colonial, and patriarchal constructions of motherhood. I argue that one of the primary ways in which Roy uses intertextuality is through her referencing of fairy tales such as "The Pied Piper of Hamelin" and "Hansel and Gretel." Roy frequently includes quotes from these fairy tales during the novels' discussions of abandonment, with both fairy tales bringing out the trope of abandonment even more so through their own depictions of loss and absent/neglectful parents. Roy's depiction of motherhood and abandonment provides an alternative narrative that challenges traditional, judgemental narratives of maternal abandonment. Roy reveals the political, economic, cultural, and patriarchal systems (and therefore the complexities) involved in a mother's decision to abandon her baby—a particular narrative and insight that isn't always afforded in children's literature and fairy tales. Moreover, Roy pairs several chapters in Ministry with various epigraphs by authors such as Jean Genet, someone who was abandoned as an infant and whose work is said to be "haunted" by images of motherhood (Child-Olmsted 44). In doing so, I conclude that Ministry challenges readers' traditional, and even western, understanding of 'family' and 'motherhood' and includes more diverse representations of the family unit and motherhood through the novel's intertextual references, storytelling, and many of the children's insistence that their parents "tell them a real story."

Chyanne Yoder

Subject: *Humanities, Behavioral & Social Sciences*   Poster #11

A Life of Labor: The Socio-politics of Pandemic Living with Chronic Illness

The threat the COVID-19 pandemic presents to chronically-ill individuals is multiplex: economic precarity, bodily risk, and biopolitical violence endanger livelihoods. This research explores the various modes of livelihood labor enacted by the chronically-ill in the intermountain US during the COVID-19 pandemic using multi-modal data gathered from a series of semi-structured interviews. Results demonstrate increased socio-economic pressures due to the fiscal expenses of chronic illness management and the pandemic's impact on the economy. However, chronic labor extended well beyond the market: increased vulnerability engendered social labor through "mental contact-tracing" and the hyper-regulation of social and clinical landscapes. More, chronically-ill participants were forced to politicize their own livelihoods in response to the institutional disregard for chronic illness within pandemic policy. Imagining chronic labor beyond the body allows for a richer understanding of the chronic experience, for which centralized research is needed. Moreover, the liminality that exists as we transition into the 'post-pandemic' provides an opportunity to reflect on disproportionate risk. While for many the pandemic has passed, and is a time of renewal, biological, socio-political, and economic inequity continue to threaten the livelihoods of vulnerable populations.

Aysha Zahidie, Kristin Van De Griend, Nnamdi Moeteke, Ryan Lindsay, David M. Hachey

Subject: *Health, Nutrition & Clinical Sciences*

Impact of Curriculum on Knowledge and Attitudes Toward Infectious Diseases Among Undergraduate Students at a Public University in The Mountain West Region

Endemic diseases such as chronic hepatitis, HIV, and other sexually transmitted infections affect masses at a large scale in the United States and exacerbate interstate and interracial health disparities all over the country. This situation warrants for development of an auxiliary healthcare workforce with quality education and training to share the burden of physicians in health facilities and champion the cause of prevention and control of infections in the community settings. This proposed research is about the impact of the existing curriculum on knowledge and attitudes toward infectious diseases among undergraduate students at Idaho State University. It will include a comparative cross-sectional study to assess the knowledge and attitude scores of two groups of undergraduate students from health and allied disciplines. These two groups will comprise fresh first-year and final-semester graduating or postgraduate students. This research project will also help in identifying gaps in the existing curriculum based on which useful recommendations will be developed for consideration by curriculum review committees.

Aysha Zahidie, Fauziah Rabbani, Sarah Hawks

Subject: *Health, Nutrition & Clinical Sciences*   Poster #6

Protecting and promoting the rights of the 'reserve army of labour': A policy analysis of structural determinants of migrant worker health in Pakistan and Qatar

Labor migrants, who travel for employment, represent over 60% of the 277 million international migrants globally. Pakistan's international labor migrants, who contribute significantly to the country's economy, predominantly find employment in Gulf Cooperation Council countries, including Qatar. Labor migrants face deep health inequities driven in a large part by upstream social and structural determinants of health. Our study aims to: (1) identify and consolidate (for the first time that we are aware of) the multilateral global-level guidance developed to assist countries to address structural determinants of the health of labor migrants; (2) assess the extent to which relevant policies of a sending country (Pakistan) and a host country (Qatar) reflect these recommendations, contain measures to strengthen their 'implementation potential' and recognize human rights, equity and gender considerations; and (3) understand factors shaping the political priority of the issue in these two countries, identify and explain limitations in the policy environments as well as prospects for progress. We applied a 'policy cube' approach to assess the strength of national policies and used semi-structured interviews to gather policy perspectives from national stakeholders. We found a wide range of guidance from the multilateral system on addressing structural determinants of the health of labor migrants. However, policy responses in Pakistan and Qatar contained a limited number of these recommended interventions and had low implementation potential and minimal reference to gender, equity and rights. Key national stakeholders had few political incentives to act and lacked understanding and coordination mechanisms required for an effective and cohesive response to labor migrant health issues. Effectively addressing such determinants to achieve health equity for labor migrants will depend on a shift in governments' attitudes towards migrants – from a reserve army of transient, replaceable economic resources to rights-holding members of society deserving of equality, dignity and respect.

Fatemeh Zareihajiabadi

Subject: *Biological & Natural Sciences*   Poster #13

Effects of B4GALNT1 expression on metastatic phenotype and response to treatment in osteosarcoma cell lines

Osteosarcoma is the most common type of bone tumor that has the highest prevalence in adolescents and young adults. Currently, the standard protocol for osteosarcoma treatment consists of surgery and chemotherapy, but despite the progress that has been made in previous decades, still 30-50% of patients experience recurrence. GD2 is a glycosphingolipid and a member of the ganglioside family that is overexpressed in several tumor tissues such as osteosarcoma and neuroblastoma while having limited expression in most normal tissues. This glycosphingolipid is synthesized by an enzyme called GD2 synthase that is coded by the B4GALNT1 gene. Recent studies have shown that the expression of B4GALNT1 in cancer cells can be related to a more malignant phenotype. In this study, we sought to understand the effects of B4GALNT1 expression on cancer cells' behavior and whether the expression of this gene can cause more metastatic phenotype and resistance to chemotherapy.

3MT 2023

Save the date for later this year, November 2023,
for the 7th annual ISU Three Minute Thesis (3MT®) Competition

Fall 2022 3MT Winners

Lauren French

1st Place
Physical Therapy - D.P.T.
Utilization of Gamification to Enhance Online Learning Outcomes within Doctor of Physical Therapy Curriculum

Ritesh Yadav

2nd Place
Business Administration - M.B.A.
Foreign Aid and Gender Inequality: Sectoral Impact of Aid

Jacob Harris

3rd Place
Sociology - M.A.
The QAnon Infection: How Families Have Reacted to Members' Conspiratorial Identities

Jeffrey Okojie

People's Choice Award
Pharmaceutical Science - Ph.D.
A Theranostic Approach for Synovial Sarcoma

Bailey Dann

State 3MT Participant
Anthropology – M.A.
Shoshoni Language Revitalization and Reclamation: Developing a Shoshoni Language Curriculum for the Secondary Classroom

3MT® THREE MINUTE THESIS
FOUNDED BY THE UNIVERSITY OF QUEENSLAND

Idaho State University

Join us for

LATE NIGHTS

WITH THE GRADUATE SCHOOL

THE FIRST FRIDAY OF EVERY MONTH

Unwind from your busy week, and join us after the First Friday Art Walk in Historic Downtown Pocatello. Network with other students, faculty, alumni, and community partners across various disciplines!

A wide variety of appetizers are always provided by the Graduate School.

Graduate School | (208) 282-2150 | isu.edu/graduate