



Idaho State
University

Graduate
School

EVENT PROGRAM

Graduate **Research Symposium:**

Showcasing Scholarly
■■■ & Creative Works

IDAHO STATE UNIVERSITY

MARCH 16, 2022

POND STUDENT UNION BUILDING



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Letter from the Dean of the Graduate School



Adam Bradford

Dean of the Graduate School

Thank you for attending the 2022 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.

One final note – after two long years of COVID-enforced isolation, this year's Graduate Research Symposium is taking place in person. This fact makes today's event even more precious to all of us, especially to those students who have labored quietly and often-times in physical isolation to produce what you are seeing today. I have spoken with those students about the loneliness they have experienced, the difficulty of doing incredibly demanding work in unprecedented circumstances. It is my sincere wish that today's event rekindles some of the flagging hope that I have borne witness to over the past two difficult years, and that the fact that we can gather together to share in the work those years has produced rekindles our belief in a bright, emergent future collectively shared.

Enjoy the Symposium!

Letter from Associate Dean of the Graduate School



Tracy Collum

Associate Dean of the Graduate School

Welcome to our 8th 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 16

11:45 a.m.	Presenter Check- in	Ballroom, PSUB
12:00 p.m.	Welcome Luncheon Dr. Adam Bradford, Dean of the Graduate School Dr. Tracy Collum, Associate Dean of the Graduate School	Ballroom, PSUB
1:10-3:10 p.m.	Oral Presentations	Third Floor, PSUB

Oral Presentation Categories	Room
Biological & Natural Sciences	North Fork
Business, Economics & Public Administration	Middle Fork
Education, Learning & Training	South Fork
Engineering, Physical & Mathematical Sciences	Middle Fork
Health, Nutrition & Clinical Sciences	Snake River
Humanities, Behavioral & Social Sciences - A	Sargent Boardroom (Last name A-H)
Humanities, Behavioral & Social Sciences - B	Clearwater (Last name I-Z)

3:15-4:45 p.m.	Poster Presentations	Ballroom, PSUB
5:00 p.m.	President Kevin Satterlee	Ballroom, PSUB
5:10 p.m.	Keynote Speaker Dr. Mustafa Mashal Ph.D., P.E., SECB, CPEng, IntPE(NZ), M. ASCE	Ballroom, PSUB
6:00 p.m.	Awards Ceremony Hors d'oeuvres and Libations	Ballroom, PSUB

Oral Presentations

Biological & Natural Sciences

North Fork

- 1:10-1:25 **Geologic Mapping and Event Tracking of Table Butte, Jefferson and Clark County, Idaho: Revising Geologic Maps and Prior Understanding of Volcanic Events**
Shanon Brailsford
- 1:25-1:40 **Intraspecific Variation of Rainbow Trout in Idaho: Genetic Comparison of Populations Among Idaho Watersheds Using Mitochondrial DNA**
Tyler Breech
- 1:40-1:55 **Local Conditions and Upstream Inputs Structure the Metabolism of a Small Urban Stream**
Kevin Gauthier
- 1:55-2:10 **A Landslide Inventory and Geostatistical Analysis for Grand Teton National Park, Wyoming**
Joshua Lingbloom
- 2:10-2:25 **Novel Stereoselective Synthesis: A library of Cytotoxic Sphingoid Bases**
Sameena Mateen
- 2:25-2:40 **Changing Patterns of Organic Carbon Processing Due to Novel Drought-Induced Stream Intermittency**
Justin Miller
- 2:40-2:55 **Discovery of New Positive Allosteric Nicotinic Receptor Modulators for Hearing Loss**
Jordan Oman
- 2:55-3:10 **The Topography of Diet: Using molaR to Infer Turtle Diet**
Brenlee Shipp

Business, Economics & Public Administration

Middle Fork

- 1:10-1:25 **Staring into the Abyss: Does Accounting Face a Looming Enrollment Cliff Crisis?**
Rana Mazumder
- 1:25-1:40 **Make Fundraising Accessible to Africans through Mobily Money**
Ulrich Moutcheu Demengam
- 1:40-1:55 **Survey of Markets for Nuclear Power in Western North America**
Pedro Mena
- 1:55-2:10 **CEO-Chairperson Family Relationship and Financial Performance: Evidence from an Emerging Economy**
Rana Mazumder

Education, Learning & Training
South Fork

- 1:10-1:25 **ACL Reconstruction Case Study: Hybrid Hamstring Graft, Collateral Ligament Sprains, and Meniscal Tear in a High School Football Player**
Natalie Cooper
- 1:25-1:40 **Shoshoni Language Revitalization in the Classroom**
Bailey Dann
- 1:40-1:55 **Developing a VR Assisted Training Program for Emergency Responders for RDD Response**
Jack Dunker
- 1:55-2:10 **Should We Offer Disaster Preparedness and Response Training Workshops Across Idaho? A Feasibility Study**
Meesha Iqbal
- 2:10-2:25 **The Effects of Neurological Impress Method Dyad Reading and Text Difficulty on Reading Achievement**
Karla LaOrange
- 2:25-2:40 **Trauma Awareness Sensory Strategies for the Virtual Classroom**
Kathryn Mason
- 2:40-2:55 **Postpartum Depression Education for Staff at Women Infant and Children Clinics in Idaho**
Megan Mondragon

Engineering, Physical & Mathematical Sciences
Middle Fork

- 2:10-2:25 **Evaluation of Tree Based Regression Over Multiple Linear Regression for Non-normally Distributed Data in Battery Performance**
Shovan Chowdhury
- 2:25-2:40 **An Energy Dissipative Double Beam Coupling Beam**
Kathryn Hogarth
- 2:40-2:55 **Simultaneous Electricity Generation and Nutrient Recovery from Wastewater Using Microbial Fuel Cell Technology**
N. Evelin Paucar

Health, Nutrition & Clinical Sciences

Snake River

- 1:10-1:25 **Bone Targeted Delivery of Novokinin, an Angiotensin Type II Receptor Agonist, for Improving Its Pharmacokinetics and Enhancing Therapeutic Effects**
Arina Ranjit
- 1:25-1:40 **Educational Intervention for Postpartum Depression in Primary Care: An Evidence-Based Practice Project**
Emma Henggeler
- 1:40-1:55 **Study of Ceramide Flux Targeting the Membrane Bound Sphingomyelin Synthase Enzyme.**
Farjana Afrin
- 1:55-2:10 **Genomic Instability: Harbinger of Chemoresistant and Metastatic Osteosarcoma**
Kaniz Fatema
- 2:10-2:25 **The Effect of Branched-Chain Amino Acid Supplementation on Cancer Treatment**
Kassidy Lee
- 2:25-2:40 **Introducing an Adverse Childhood Experiences (ACEs) Screening Program in the Pediatric Primary Care Setting: A Quality Improvement Project.**
Mackenzie Gustafson
- 2:40-2:55 **Individual and Community Preparedness to Disasters & Pandemics in Idaho Falls: A Cross Sectional Analysis**
Meesha Iqbal
- 2:55-3:10 **Risk Indicators of Gum Disease and Dental Visit Status of Women Who Used Female Hormonal Medications; Insights from the NHANES**
Sowmya Natarajan

Humanities, Behavioral & Social Sciences - A

Sargent Boardroom

- 1:10-1:25 **Trauma Unheard: The Social Disenfranchisement of Grief**
Mel Anderson
- 1:25-1:40 **An Examination of Mental Health, ACEs, and Service Referrals as Predictors of Recidivism in Detained Youth**
Makenzie Atwood
- 1:40-1:55 **Applied GIS to Model the Obsidian Distribution on the Snake River Plain**
Talissa Cota
- 1:55-2:10 **Creating Mayhem in Narratives: How Allstate's Mayhem Ads Use Rhetoric and Humor to Develop a Serial Narrative Campaign**
Payton Gibbs

- 2:10-2:25 **Hair Dye (Graphic Novel)**
Katie Griffith
- 2:25-2:40 **"I Want My Damn Mom Back!": The Lived Experiences of the Family Members of QAnon Affiliates**
Jacob Harris
- 2:40-2:55 **Utilizing Photovoice to Assess Time Stories: The Future of Coexistence with Grizzly Bears Around the Beaverhead-Deerlodge National Forest**
Marley Held

Humanities, Behavioral & Social Sciences - B
Clearwater

- 1:10-1:25 **Does Participation in Extra-Curricular School Activities Prevent Bullying Victimization? A Dueling Theoretical Approach**
Sarah Liftawi
- 1:25-1:40 **How the Humanities Help the Healing of Nature**
Brianna Lords
- 1:40-1:55 **Haunted by Mennonites**
Lazaro Martinez
- 1:55-2:10 **Implicit Racial Preferences Among Dental Hygienists**
Olivia Morzenti
- 2:10-2:25 **Raising Moral Issues on Rising Temperatures: An Analysis of Climate Change, Trust, Risk Perception, and Ecological Values**
Amme Redington
- 2:25-2:40 **Fearing Female Sexual Predators: An Analysis of the Determinants of Concern Regarding Female Sex Offenders**
Erika Richards
- 2:40-2:55 **Identifying Opportunities for and Obstacles to Adoption: Symbolic Meanings and Material Effects of Grizzly Bear Conflict-Reduction Tools**
Allegra Sundstrom

Poster Presentations

Biological & Natural Sciences

- #1 **Coordination of Sap Flux and Water Storage at Various Heights and Depths Inside Stems in Two Tree Species of Differing Hydraulic Strategies**
Lauren Tucker
- #13 **Targeted Enrichment of Ancient DNA through Hybrid-Capture with RNA Baits**
Rebecca Hazard
- #19 **Effects of Intermittence and Springs on Greenhouse Gas Concentrations in Streams**
Riley Lanfear
- #24 **Characterizing Gating Defects of SCN2A Countercharge Mutations in Epilepsy Syndromes**
Sarah Brockway
- #28 **Evaluation of Galantamine and Deconstructed Analogs as $\alpha 7$ nAChR and AChE Ligands**
Nirajan Bhattarai

Business, Economics & Public Administration

- #4 **The Impact of Corporate Governance Status on Estimating Future Corporate Earnings**
Rana Mazumder

Education, Learning & Training

- #3 **Staring into the Abyss: Does Accounting Face a Looming Enrollment Cliff Crisis?**
Rana Mazumder
- #11 **ARCoD: A Serious Game Approach to Measure Cognitive Distortions in Individual**
Rifat Ara Tasnim

Engineering, Physical & Mathematical Sciences

- #16 **Evaluation of Tree Based Regression over Multiple Linear Regression for Non-normally Distributed Data in Battery Performance**
Shovan Chowdhury
- #18 **A LiDAR-Based Landslide Inventory of Road Corridors in Yellowstone National Park**
Kyra Bornong

- #21 **Synthesis and Characterization of Rigid Tetra-Alkyl Phosphonium Based Task Specific Ionic Liquids.**
Sameena Mateen
- #25 **Simultaneous Electricity Generation and Nutrient Recovery from Wastewater Using Microbial Fuel Cell Technology**
N. Evelin Paucar
- #29 **An Energy Dissipative Double Beam Coupling Beam**
Kathryn Hogarth
- #34 **Make fundraising Accessible to Africans through Mobily Money**
Ulrich Moutcheu Demengam

Health, Nutrition & Clinical Sciences

- #2 **Antiepileptic Drug and Teratogen Valproic Acid Induces Microglial Cell Death in a Valproic Acid Murine Model of Autism**
Allison Loyola
- #5 **Introducing an Adverse Childhood Experiences (ACEs) Screening Program in the Pediatric Primary Care Setting: A Quality Improvement Project**
Mackenzie Gustafson
- #7 **The Sustainability of Intensive Comprehensive Aphasia Programs (ICAPs)**
Katie Roberts
- #9 **Development of a Selective, Sensitive, and Rapid LC-MS/MS Assay for Studying the Effect of Concurrent Intake of Pepper and Turmeric on Curcumin Bioavailability in Human**
Sana Khajeh pour
- #12 **Bone Targeted Delivery of Novokinin, an Angiotensin Type II Receptor Agonist, for Improving its Pharmacokinetics and Enhancing Therapeutic Effects**
Arina Ranjit
- #15 **Genomic Instability: Harbinger of Chemoresistant and Metastatic Osteosarcoma**
Kaniz Fatema
- #17 **Hispanic Cultural Sensitivity for Hospice Clinicians**
Diana Gilmore
- #20 **Three-Dimensional Cancer: Using Functional Precision Medicine in the Treatment of Synovial Sarcoma and Other Cancers**
Matthew Kirkham

- #31 **Novel Two-Electrode Voltage-Clamp Recording System with Automated Robotic Rapid Perfusion and 3D Printed Chamber**
Pooja Sapkota
- #23 **Design and Synthesis of Phthalimide/ γ -Lactam Based Small Molecules Targeting Sphingolipid Metabolizing Enzyme Sphingosine Kinase.**
Farjana Afrin
- #27 **Action Theater for Community Stroke Education**
Kasey Ward
- #33 **Development of a Novel Synovial Sarcoma Therapy**
Sarah McCollum

Humanities, Behavioral & Social Sciences

- #6 **Access**
Alexa Shoemaker
- #14 **Psychological Flexibility Mediates the Effect of Interpersonal Violence on Feelings of Shame**
Gabriela Perez
- #10 **The Relationship Between Current and Ideal Therapist Personality Matching and Collaboration, the Relational Bond, and Satisfaction in Psychotherapy**
Katharine Roth
- #22 **Mennonite Church USA in Idaho**
Lazaro Martinez
- #26 **The Influence of Perceived Parental Acceptance of Gender-Diverse Identity Among Autistic Individuals on Quality of Life**
Megan Bigham
- #30 **Creating Mayhem in Narratives: How Allstate's Mayhem Ads Use Rhetoric and Humor to Develop a Serial Narrative Campaign**
Payton Gibbs
- #32 **Understanding the Role of Emotion Regulation in the Relation Between Experiences of Childhood Trauma and Substance Use Among Incarcerated Women**
Shelby Weber

Keynote Speaker



Mustafa Mashal

Ph.D., P.E., SECB, CPEng, IntPE(NZ), M.ASCE

Mustafa Mashal is an Associate Professor in the Department of Civil and Environmental Engineering and Director of the Disaster Response Complex and Large-Scale Structural Laboratories at Idaho State University. He is a Fellow and Faculty at the Center for Advanced Energy Studies (CAES), working on projects in collaboration with Idaho National Laboratory.

Mustafa obtained his PhD, Masters, and Bachelors in Civil Engineering with a focus on Structural and Earthquake Engineering from the University of Canterbury in New Zealand (2015), University at Buffalo-State University of New York in the United States (2011), and Kabul University in Afghanistan (2009), respectively. Mustafa is a registered Professional Engineer (P.E.) in Idaho, a Chartered Professional Engineer (CPEng) and International Professional Engineer (IntPE) in New Zealand, and is certified by the Structural Engineering Certification Board (SECB) in the United States. He has more than 12 years of consulting and academic experience in the United States, New Zealand, and Afghanistan. He has been the recipient of several awards and recognitions such as the “2020 Alfred Noble Prize” from the American Society of Civil Engineers (ASCE) and the 2018 ASCE Southern Idaho Section “Outstanding Civil Engineer of the Year Award”. He has been part of over 100 publications and is a member of several national standards committees in the United States.

2021 GRS Award Recipients

Oral Presentation Award Recipients

Top Oral Presentation in Biological & Natural Sciences

Presented to

Benjamin Kline

DNA-Methylation Profiles of Redband Trout from Desert and Montane Environments

Top Oral Presentation in Business, Economics & Public Administration

Presented to

Jeffrey Morgan

Benevolent or Bearable? How Online Graduate Students Determine that Faculty Care

Top Oral Presentation in Education, Learning & Training

Presented to

Sandro Benitez

Closing the Gap? How Grit Impacts Hispanic Students' Retention

Top Oral Presentation in Engineering, Physical & Mathematical Sciences

Presented to

Tyler Paladino

Understanding the Effects of Wind on the Stability of Explosive Eruption Plumes

Top Oral Presentation in Health, Nutrition & Clinical Sciences

Presented to

Thomas Murphy

Implementing the SMART Medical Clearance Form to Improve Emergency Psychiatric Care:
A Quality Improvement Project

Top Oral Presentation in Humanities, Behavioral & Social Sciences

Presented to

Meesha Iqbal

Prevalence of Emotional and Physical Intimate Partner Violence Among Married Women in Pakistan

Creative Works Award Recipient

Top Creative Works Presentation

Presented to

Iris Gray

Joyce Ignites the Universe: A Photographic History

Poster Presentation Award Recipients

Top Poster Presentation in Biological & Natural Sciences

Presented to

Tyler Breech, Shawn Narum, Janet Loxterman, Ernest Keeley

Genetic Analysis of Native Redband Trout Legacy Samples in Idaho

Top Poster Presentation in Business, Economics & Public Administration

Presented to

LeAnne Woods, Karen Hartman

How Scansis Functions: Lessons from the Houston Astros Sign-Stealing Crisis

Top Poster Presentation in Education, Learning & Training

Presented to

Kurt Schiess

The Morrill "Land Grant" Acts and How They Provide Access to Higher Education for All

Top Poster Presentation in Engineering, Physical & Mathematical Sciences

Presented to

Usha Pant

Analytical and Experimental Investigation of Modular Structural Concrete Insulated Panels

Top Poster Presentation in Health, Nutrition & Clinical Sciences

Presented to

Sowmya Natarajan, Irene van Woerdenn

Are Patients at Risk for Oral Cancer Being Screened for the Disease?

Top Poster Presentation in Humanities, Behavioral & Social Sciences

Presented to

Gabriela Perez, Shannon Lynch

Social Reactions to Disclosure of Interpersonal Violence:
Effects on Coping Self-Efficacy in Incarcerated Women

List of Graduate Student Participants

College of Arts and Letters

Mel Anderson (English - MA)
Makenzie Atwood (Clinical Psychology - PhD)
Megan Bigham (Clinical Psychology - PhD)
Talissa Cota (Anthropology - MS)
Bailey Dann (Anthropology - MA)
Payton Gibbs (Communication - MA)
Katie Griffith (Communication - MA)
Jacob Harris (Sociology - MA)
Marley Held (Sociology - MA)
Sarah Liftawi (Sociology - MA)
Brianna Lords (English - MA)
Lazaro Martinez (History - MA)
Gabriela Perez (Clinical Psychology - PhD)
Erika Richards (Political Science - DA)
Danielle Richner (Clinical Psychology - PhD)
Katharine Roth (Clinical Psychology - PhD)
Alexa Shoemaker (Communication - MA)
Allegra Sundstrom (Sociology - MA)
Rifat Ara Tasnim (Engineering & Applied Science - PhD)
Shelby Weber (Clinical Psychology - PhD)

College of Science and Engineering

Kyra Bornong (Geology - MS)
Shanon Brailsford (Geographic Information Science -MS)
Tyler Breech (Biology - PhD)
Sarah Brockway (Biology - MS)
Jack Dunker (Health Physics - MS)
N. Evelin Paucar (Engineering & Applied Science - PhD)
Kevin Gauthier (Biology - MS)
Rebecca Hazard (Engineering & Applied Science - PhD)
Kathryn Hogarth (Civil Engineering - MS)
Riley Lanfear (Biology - MS)
Joshua Lingbloom (Geology - MS)
Pedro Mena (Engineering & Applied Science - PhD)
Justin Miller (Biology - MS)
Ulrich Moutcheu Demengam (Computer Science - MS)
Amme Redington (Environmental Science & Management - MS)
Uma Shankar Medesetti (Computer Science - MS)
Brenlee Shipps (Biology - MS)
Lauren Tucker (Biology - PhD)

College of Business

Rana Mazumder (Accountancy - MAcc)

College of Education

Natalie Cooper (Athletic Training - MS)

Tania Harden (Educational Leadership - EdD)

Karla LaOrange (Educational Leadership - EdD)

Kathryn Mason (Educational Leadership - EdD)

Kasiska Division of Health Sciences

College of Pharmacy

Farjana Afrin (Pharmaceutical Science - PhD)

Nirajan Bhattarai (Pharmaceutical Science - PhD)

Kaniz Fatema (Pharmaceutical Science - PhD)

Pradeep Giri (Pharmaceutical Science - PhD)

Sana Khajeh Pour (Pharmaceutical Science - PhD)

Matthew Kirkham (Pharmaceutical Science - PhD)

Allison Loyola (Pharmaceutical Science - MS)

Sameena Mateen (Pharmaceutical Science - PhD)

Sarah McCollum (Pharmaceutical Science - PhD)

Jeffery Okojie (Pharmaceutical Science - PhD)

Jordan Oman (Pharmaceutical Science - PhD)

Srinath Pashikanti (Pharmaceutical Science - PhD)

Arina Ranjit (Pharmaceutical Science - PhD)

Pooja Sapkota (Pharmaceutical Science - MS)

Sabina Yeasmin (Pharmaceutical Science - PhD)

College of Health

Meesha Iqbal (Public Health - MPH)

Kassidy Lee (Nutrition - MS)

Olivia Morzenti (Dental Hygiene - MS)

Sowmya Natarajan (Public Health - MPH)

Monica Colleen Stephenson (Dental Hygiene - MS)

School of Nursing

Diana Gilmore (Nursing Practice - DNP)

Mackenzie Gustafson (Nursing Practice - DNP)

Emma Henggeler (Nursing Practice - DNP)

Megan Mondragon (Nursing Practice - DNP)

Kasey Ward (Nursing Practice - DNP)

School of Rehabilitation and Communication Sciences

Katie Roberts (Speech-Language Pathology - MS)

Abstracts

Farjana Afrin, Srinath Pashikanti, James Lai

Subject: Health, Nutrition & Clinical Sciences

Category: Oral Presentation Session

Study of Ceramide Flux Targeting the Membrane Bound Sphingomyelin Synthase Enzyme

Sphingolipids are a class of biomolecules that play a crucial role in several cellular events like cell growth, proliferation, migration, differentiation, apoptosis, cell senescence, etc. Ceramide (Cer) is at the center of the sphingolipid biosynthesis and metabolism. Sphingomyelin (SM) is one of the major phospholipids which is synthesized from the Ceramide by the enzyme Sphingomyelin Synthase (SMS). In regular cells, there is a balance between the amount of ceramide and sphingomyelin in the body. But in cancer cells, this balance is significantly altered. Previous works of literature have shown that an increase in the ceramide content in cancer cells leads to the death of the cells. Our goal is to increase the ceramide level by inhibiting the SMS enzyme.

Farjana Afrin, Sameena Mateen, Srinath Pashikanti

Subject: Health, Nutrition & Clinical Sciences

Category: Poster Session

Design and Synthesis of Phthalimide/ γ -Lactam Based Small Molecules Targeting Sphingolipid Metabolizing Enzyme Sphingosine Kinase.

Sphingolipids are a class of biomolecules that play a crucial role in several cellular events like cell growth, proliferation, migration, differentiation, apoptosis, cell senescence, etc.

Sphingosine-1-phosphate (S1P) is a bioactive sphingolipid that regulates the growth, survival, and migration of several cell types. S1P is a ligand for five transmembranes G-protein –coupled receptors, S1P1-5, and for several intracellular targets such as histone deacetylases 1 and 2. SphKs have been implicated in a variety of diseases such as cancer, sickle cell disease, atherosclerosis, asthma, diabetes, and fibrosis. Although SphK1 and SphK2 share a high degree of homology, they differ in size, localization, distribution, and intracellular roles. The biological significance of sphingosine kinases has encouraged academia and the pharma industries to target SphK1.

Mel Anderson

Subject: Humanities, Behavioral & Social Sciences

Category: Oral Presentation Session

Trauma Unheard: The Social Disenfranchisement of Grief

Critical trauma theory in literature posits that, for survivors, trauma is both unremembered and unspoken. This thesis counters that theory and instead argues that trauma is both remembered and spoken, but is socially unheard. Citing heavily from narratives of genocide and political violence that show that trauma is impossible to forget, I argue that the brain remembers trauma, but that trauma is socially unspeakable. Moreover, when we say trauma itself is unspeakable, we excuse ourselves from the imperative to listen. The burden is shifted: It is not our burden to understand, but a survivor's burden to ensure others' comfort, to allow others to deny the existence, or at least the close temporal proximity, of pain.

Makenzie Atwood

Subject: Humanities, Behavioral & Social Sciences

Category: Oral Presentation Session

An Examination of Mental Health, ACEs, and Service Referrals as Predictors of Recidivism in Detained Youth

Criminal legal system-involved youth experience high rates of mental health problems (Beaudry et al., 2020; Grisso, 2004) and Adverse Childhood Experiences (ACEs) (Baglivio et al., 2014). Given the high rates of mental health diagnoses and maltreatment in this population, it is important that we understand to what extent system-involved youth are referred to mental health services and are able to access these services. However, there is limited research assessing referral rates or the association between accessing services and reoffending. This study examined to what extent youths' scores on the MAYSI-2, as a mental health measure, ACE scores, and demographic characteristics were associated with mental health service referral. It also examined the extent to which mental health scores, number of ACEs, and obtaining services predicted subsequent offending. Finally, this study examined associations among key demographic characteristics and both service referral and reoffending.

Megan Bigham, Robert Rieske

Subject: Humanities, Behavioral & Social Sciences

Category: Poster Session

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

Autistic individuals are significantly more likely to identify as gender-diverse, with prior research citing approximately 11.4% of the community identifying outside of the gender binary. While there is little known about the underlying mechanisms of this high co-occurrence, it is clear that this dually marginalized population experiences increased stressors and negative outcomes as a result of minority stress. This population may experience, anticipate, and internalize discriminatory events due to stigma against their autistic and gender identities, leading to decreased quality of life. However, factors such as parental acceptance of these identities may be protective against minority stress. The current study addresses the literature gap regarding outcomes for gender-expansive, autistic individuals.

Kyra Bornong

Subject: Engineering, Physical & Mathematical Sciences

Category: Poster Session

A LiDAR-Based Landslide Inventory of Road Corridors in Yellowstone National Park

Landslides are one of the most globally pervasive and impactful geologic hazards. Steep slopes, extreme precipitation events, and seismic activity all make landslides a common feature of the Greater Yellowstone Ecosystem (GYE). These hazards pose a particular concern to infrastructure, especially roads. The roads of the GYE are the most extensively utilized public resource. Many traverse rugged, unstable terrain and landslide events sometimes result in inconvenient closures, expensive repairs, and harm to drivers. Without reliable, safe roads, the GYE's extraordinary features would be inaccessible to millions of visitors annually. Landslide inventories reveal locations and characteristics of landslides and are foundational tools for assessing risk. Though several individual landslides have been identified and studied in Yellowstone, no systematic inventory has been conducted. In the summer of 2020, the USGS collected high resolution, bare-earth LiDAR topography of the park, providing an unprecedented opportunity for geomorphic mapping.

In particular, the LiDAR enables identification of subtle variations in topography (even below forest cover) that characterize landslide scars and deposits. This study uses LiDAR and field observations to create a ~1:4,000 scale geodatabase of landslides within road corridors in Yellowstone.

Thus far, the LiDAR data reveals hundreds of landslides not identified in existing surficial geologic maps or other databases. The landslide activity within the road corridor occurs in patches, often clustered in areas of high relief or over unstable materials. Multiple generations of initiation and reactivation are often apparent, suggesting zones of chronic instability. That said, most of the road corridor in the park shows no evidence of past or probable instability. Shared with park managers and other agencies, this inventory will help inform management decisions and provide a starting point for a park-wide inventory. Further, the inventory supports refinement of geologic maps, risk assessment, and mitigation of impacts related to climate change.

Shanon Brailsford

Subject: Biological & Natural Sciences

Category: Oral Presentation Session

Geologic Mapping and Event Tracking of Table Butte, Jefferson and Clark County, Idaho: Revising Geologic Maps and Prior Understanding of Volcanic Events

The eastern Snake River Plain (ESRP), a monogenetic basaltic field and the type location for plains-style volcanism, is valuable for understanding the geologic history and hazards of Idaho and for studying planetary volcanism by terrestrial analog (e.g., Gallant, 2018, Greeley, 1982; Hughes et al., 2018; Neish et al., 2017; Tolometti et al., 2020). The study of past eruptions and their hazards provides important context for evaluating the potential for future eruptions and hazards on the ESRP. While accurate maps of past volcanism are critical to such efforts, there are areas of suspected inaccuracies in the ESRP maps, including Table Butte (Hughes et al., 2002). Unlike most of the volcanoes on the ESRP, Table Butte has a steep-sided central platform, ejecta deposits including lake sediment blocks (S. Hughes, personal communication), and ~25 small craters (Gallant et al., 2018). These features suggest that phreatomagmatic eruptions may have partially formed Table Butte. Consequently, many of the craters previously mapped as vents from aerial imagery (Wetmore et al., 2009) may represent rootless steam explosion pits. Incorrectly labeling such features creates a problem with existing ESRP maps and datasets because rootless vents and primary vents are fundamentally different features and should not be conflated (Wohletz, 1986). Incorrectly identified primary vents, particularly ones in a cluster like at Table Butte, have the potential to strongly influence calculations of eruption frequency, lava volume over time, and probability of inundation in the future. Therefore, knowing how many vents there are also provides information on how many events occurred in the area. As such, it is essential to correctly identify the eruption history of Table Butte and differentiate between rootless vents and primary vents.

Tyler Breech, Ernest Keeley, Janet Loxterman

Subject: Biological & Natural Sciences

Category: Oral Presentation Session

Intraspecific Variation of Rainbow Trout in Idaho: Genetic Comparison of Populations Among Idaho Watersheds Using Mitochondrial DNA

Widely distributed species often exhibit intraspecific variation between populations, and accounting for intraspecific variation is a crucial consideration in species assessments and conservation plans. 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

increasingly revealed divergence patterns generalized phenotypic observations may not characterize. Rainbow Trout (*Oncorhynchus mykiss*) are one of the mostly distributed salmonid species, and exhibit a substantial amount of within-species variation. There have been many efforts to accurately define subspecies and distinct populations, but recent analyses have suggested classical phenotypic demarcations do not capture significant genetic divergence between some populations.

Sarah Brockway

Subject: Biological & Natural Sciences

Category: Poster Session

Characterizing Gating Defects of SCN2A Countercharge Mutations in Epilepsy Syndromes

We are interested in the role of negatively charged residues in the S1 to S3 segments of voltage-gated sodium channels as countercharges to S4 arginine and lysine residues during gating. There are only a few studies that have investigated the functional impact of countercharge mutations associated with channelopathies of nerve or muscle. In the present work we sought to characterize the gating defects of three countercharge mutations in brain SCN2A channels that are associated with epilepsy syndromes. One of these, E1211K, located in domain III S1, exhibits mixed gating defects (Ogiwara et al 2009) when heterologously expressed in mammalian cells. Two other epilepsy-related countercharge mutations (N132K, domain I S1; E169G, domain I S2) have not been characterized.

Shovan Chowdhury, Yuxiao Lin, Boryann Liaw, Leslie Kerby

Subject: Engineering, Physical & Mathematical Sciences

Category: Poster and Oral Presentation Sessions

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

Battery performance datasets are typically non-normal and multicollinear. Extrapolating such datasets for model predictions needs attention to such characteristics. This study explores the impact of data normality in building machine learning models. In this work, tree-based regression models and multiple linear regressions models are each built from a highly skewed non-normal dataset with multicollinearity and compared.

Natalie Cooper

Subject: Education, Learning & Training

Category: Oral Presentation Session

ACL Reconstruction Case Study: Hybrid Hamstring Graft, Collateral Ligament Sprains, and Meniscal Tear in a High School Football Player

Objective: To examine a unique anterior cruciate ligament tear with a posterior-lateral meniscal lesion, medial and lateral collateral ligament sprains, and chondromalacia. **Background:** The patient is an eighteen-year-old male multi-sport athlete with no prior history of knee injuries. The athlete suffered a non-contact injury to the left knee during a cutting maneuver attempting to block in a game. The athletic trainers' on-field diagnosis were anterior cruciate ligament and medial collateral ligament sprains. **Differential Diagnosis:** LCL sprain, MCL sprain, PCL sprain, tibial spine fracture, bone bruise and osteochondral defects.

Talissa Cota

Subject: Humanities, Behavioral & Social Sciences

Category: Oral Presentation Session

Applied GIS to Model the Obsidian Distribution on the Snake River Plain

Due to Idaho's volcanic past, the Snake River Plain contains at least twenty, and potentially many more, geochemically distinct obsidian exposures quarried in prehistory. Numerous obsidian provenance studies have shown that this high-quality tool stone has moved considerable distances across the landscape. The goal of this study is to use applied GIS to create a spatially representative digital format of previously published obsidian provenance data.

Malaika D. Argade, Laura DeCristofano, Nirajan Bhattarai, Marvin Schulte, Malgorzata Dukat

Subject: Biological & Natural Sciences

Category: Poster Session

Evaluation of Galantamine and Deconstructed Analogs as $\alpha 7$ nAChR and AChE Ligands

Introduction: As per early "cholinergic hypothesis", overall cholinergic deficit may be an underlying pathological basis for Alzheimer's Disease (AD), a neurodegenerative disorder and common form of elderly dementia. This led to FDA approval of Donepezil, Rivastigmine, and Galantamine, the three among only five approved drugs, for treating Alzheimer's disease, which are primarily acetylcholinesterase inhibitors. Galantamine, in particular, is known as an Acetylcholinesterase (AChE) inhibitor and is thought to exert a positive allosteric modulatory effect on $\alpha 7$ Nicotinic Acetylcholine Receptors (nAChR).

Objective: To deconstruct the structure of Galantamine for the synthesis of 10 different analogs, and to examine the potential effect on $\alpha 7$ nACh receptors and AChE inhibition.

Bailey Dann

Subject: Education, Learning & Training

Category: Oral Presentation Session

Shoshoni Language Revitalization in the Classroom

The Shoshoni language is part of 90% of the Indigenous languages on this continent that are actively experiencing language shift, decay, and extinction (Kroskrity, 2016). If the Shoshoni language were to die, it would be considered an incalculable loss not only to the Shoshoni people and their descendants but also to the world as a whole. My research focuses on developing a Shoshoni language curriculum that is cultivated through pedagogical practices grounded in Language Revitalization education and methodology. Indigenous languages have often been intentionally forbidden within schools, and children have been punished for speaking them (McCarty 2013; Skutnabb-Kangas and Phillipson 1994). Efforts to facilitate Language Revitalization within schools must confront this legacy of structural violence and exclusion, seeking effective ways to achieve endangered language learning within existing institutions, seizing opportunities to design new models of schooling, and supporting grassroots movements within the endangered language community (Hornberger & De Korne, 2018).

By examining and acknowledging my personal experiences in a Shoshoni language classroom as a language teacher and as a graduate student actively working on and developing tools for my community to revitalize and strengthen our language, I posit that language revitalization is possible through avenues such as

schooling that were historically harmful toward Indigenous peoples. Through a reimagining of institutions and incorporation of indigenous methodologies such as storytelling as well as indigenous ways of knowing, the Shoshoni language will be spoken for generations to come.

Jack Dunker, Uma Shankar Medesetti

Subject: Education, Learning & Training

Category: Oral Presentation Session

Developing a VR Assisted Training Program for Emergency Responders for RDD Response

An RDD (Radiological Dispersal Device) or dirty bomb, is a threat that America has yet to face but poses tremendous damage far beyond a conventional bomb. To prepare for this possibility, the Department of Homeland Security has developed a ten point response plan in the hopes of standardizing the response procedure across the nation to minimize confusion and enable emergency responders to act swiftly and decisively for the safety and peace of mind of the nation. To better prepare responders to many intricate factors of radiological survey work during an emergency, we have developed a VR training program that assists preparing responders to the conditions they will face during an RDD attack and help them practice their procedures to be more effective and efficient in the field.

Kaniz Fatema, Shawn Plyler, Adriene Pavek, Chris Nartker, Zachary Larson, Yanliang Wang, Kevin Jones

Subject: Health, Nutrition & Clinical Sciences

Category: Poster and Oral Presentation Sessions

Genomic Instability: Harbinger of Chemoresistant and Metastatic Osteosarcoma

Osteosarcoma (OS) is the most common pediatric malignant bone tumor in the USA and the third most common cancer among adolescents. Predicting chemosensitivity is a significant hurdle in improving patient outcomes. Genetic mutations to use as biomarkers are muddled by the complex genomic instability existing at baseline in most osteosarcoma. To understand the mechanisms underlying chemoresistance and cancer progression, we sought to identify gene mutations that enhanced osteosarcomagenesis in a random mutagenesis screen. One of the top gene mutations associated with a more aggressive cancer phenotype was Arid1a. Arid1a is a member of an epigenetic chromatin remodeling complex and has been implicated in the progression and worse prognosis of other cancers.

Kevin Gauthier, Isreal Martinez, Rebecca Hale

Subject: Biological & Natural Sciences

Category: Oral Presentation Session

Local Conditions and Upstream Inputs Structure the Metabolism of a Small Urban Stream

Streams are important players in the global carbon cycle due to their capacity to both process organic matter inputs from upstream and the terrestrial landscape through respiration (ER) and produce new organic carbon through photosynthesis (GPP). Stream metabolism represents the balance between GPP and ER. Quantifying the role of streams in carbon budgets is challenging because metabolism varies greatly both within and among streams, and our ability to predict stream metabolism across large geographic areas is limited. The role of nutrients in limiting stream metabolism is particularly unpredictable, as nutrient concentrations are often uncorrelated with metabolism in field studies. We hypothesized that nutrient inputs from upstream to local study sites would better predict metabolism than local nutrient concentrations. We

tested this hypothesis by measuring stream metabolism and a suite of potential physical drivers of metabolism, including nutrient concentrations, in three adjacent stream reaches and one tributary reach of an urban stream network in southeast Idaho, USA. Nutrient concentrations declined from headwaters to downstream sites (e.g., total phosphorus decreased from 0.097 ± 0.078 mg/L to 0.031 ± 0.014 mg/L) while GPP and ER increased, indicating that in-stream consumption of nutrients can result in poor correlations between nutrient concentrations and metabolic rates at the downstream end of a stream reach. Accounting for both local conditions and upstream inputs when investigating the drivers of stream metabolism may present a more holistic understanding of metabolic dynamics and improve the predictability of metabolism within and across streams.

Payton Gibbs

Subject: Humanities, Behavioral & Social Sciences

Category: Poster and Oral Presentation Sessions

Creating Mayhem in Narratives: How Allstate's Mayhem Ads Use Rhetoric and Humor to Develop a Serial Narrative Campaign

A growing number of companies, particularly insurance companies, are investing in long-term video advertising campaigns centered around figure characters or "mascots" to promote the brand image (Progressive, Geico, Liberty Mutual, Allstate, etc.). These short video ads function similarly to a TV series or a sitcom by providing 1) recurring characters, 2) parallel structure/themes, and 3) humor. It is proposed that these ads function as a "serial narrative" campaign. In doing so, they've captured the nation's attention by harvesting millions of views and millions in revenue for the companies who use them.

Diana Gilmore, Melody Weaver

Subject: Health, Nutrition & Clinical Sciences

Category: Poster Session

Hispanic Cultural Sensitivity for Hospice Clinicians

The Hispanic population is the fastest growing minority group in the United States (U.S.). However, their use of hospice does not reflect this growth. Cultural barriers exist for Hispanics to use hospice. Hispanic cultural sensitivity education for hospice clinicians can help bridge that gap.

Katie Griffith

Subject: Humanities, Behavioral & Social Sciences

Category: Oral Presentation Session

Hair Dye (Graphic Novel)

In media presented to teenagers mental illness is 2D and glorified, and queer identity seems to begin and end with just coming out of the closet. Nuance of these topics is scary and difficult to explain. Generation Z, people born between 1997 and 2012, is the queerest generation, and most accepting of destigmatizing mental illness. This means nuanced and artistic conversations can happen, and need to happen. Drawings and text will work together to explore sexual and gender identity, and the mental issues we suffer behind closed doors. Hair Dye is a graphic novel that depicts the complex, painful, and sometimes even beautiful experience of asking for help, confronting your demons, and finding your identity. Running about 50 pages in length this novel follows events inspired by my own personal experiences with mental illness and the LGBTQIA+ community. This creative project is part of my Master's degree in Communications, and seeks to combine communicative theory with artistic expression.

Mackenzie Gustafson

Subject: Health, Nutrition & Clinical Sciences

Category: Poster and Oral Presentation Sessions

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

Problem Statement: Children who experience Adverse Childhood Experiences (ACEs) face a higher lifetime risk of mental and physical illness, and negative impacts on other quality of life measures, resulting in higher lifetime cost, shorter lifespan, and overall diminished wellness.

Purpose: Implement and evaluate a low-cost evidence-based ACEs screening program in a pediatric primary care clinic to identify ACEs and connect families with supportive resources as a first step intervention in reducing the negative impacts on lifetime wellness.

Tania Harden

Subject: Education, Learning & Training

Category: Poster Session

Game-Based Learning and the Coherence Principle: Their Effects on Learning Outcomes and Self-Efficacy

It has been proposed that using game-based learning (GBL) is a solution to re-engaging students in e-learning. The purpose of GBL in instructional content is to engage/motivate the learner and to provide effective learning experiences. Games are multimedia and can be studied through the lens of the Cognitive Theory of Multimedia Learning and its design principles. These principles have been studied extensively in conventional multimedia material; however, little evidence-based research has been done about their application in GBL. This study examined the coherence principle and whether the research demonstrating negative effects of its violation also applies in GBL.

Games threaten to violate the coherence principle by adding extraneous elements, such as background music, sound effects, etc. Game elements, such as aesthetics, and storylines are used to make the game more interesting. Distracting features could cause an increase in extraneous cognitive processing, decreasing the learner's ability to mentally represent the content related to the learning objectives. Because games have been found to be engaging, using them as part of the learning content might more fully engage the student and counteract the effects of the added extraneous cognitive load.

Jacob Harris

Subject: Humanities, Behavioral & Social Sciences

Category: Oral Presentation Session

"I Want My Damn Mom Back!": The Lived Experiences of the Family Members of QAnon Affiliates

QAnon is a movement rooted in a meta-conspiracy theory that the FBI has deemed a domestic terrorist threat. It is based on the claim that a "deep state" cabal of pedophiles was attempting to undermine former President Trump. Since its development in 2017, QAnon has gained traction in social media. QAnon affiliation has occurred across several social divisions, including political affiliation, socioeconomic status, and gender. QAnon affiliates' family members have migrated to the subreddit r/QAnonCasualties to share their QAnon related experiences, provide instructional advice to those in need, and sympathize with others

in similar situations. I seek to understand how QAnon affiliation has affected adherents' relationships with their non-affiliating family members.

Rebecca Hazard, John Dudgeon

Subject: Biological & Natural Sciences

Category: Poster Session

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

DNA extracted from archaeological specimens can provide researchers with a wealth of information about the lives of prehistoric people, as well as the plants and animals they relied on for survival. The amount of data available for analysis has increased dramatically in recent years with new DNA sequencing technologies that allow for greater and more extensive coverage of whole genomes. However, this type of analysis can be challenging for archaeologists due to the degradation and contamination of ancient DNA sources over time. In fact, some researchers estimate that only about 1% of an archaeological sample contains DNA from the organism of interest, with the remainder coming from bacteria and other contaminants. To most efficiently sequence the target DNA it must first be enriched and separated from exogenous molecules. In order to accomplish this we have employed a purification method that uses RNA baits transcribed from a fragmented template of the target organism's genome. These baits are used to capture ancient molecules through hybridization and isolate the DNA of interest. We applied this hybrid-capture protocol to a set of highly degraded and contaminated archaeological DNA samples and found that we were able to successfully sequence our target genomes with only a moderate amount of carryover from exogenous bacterial DNA.

Marley Held

Subject: Humanities, Behavioral & Social Sciences

Category: Oral Presentation Session

Utilizing Photovoice to Assess Time Stories: The Future of Coexistence with Grizzly Bears Around the Beaverhead-Deerlodge National Forest

The recovery of the grizzly bear and subsequent rise in their presence around the Beaverhead-Deerlodge National Forest (BDNF) in southwest Montana has produced contention and agreement among people, as well as conflict and coexistence between people and the carnivore. The term coexistence is one that is highly contested and imperfectly defined in conservation (Martin et al. 2021; Frank 2016). Stakeholders within the rural communities of the BDNF are facing challenges in coexisting with the returning carnivore on their landscape. Furthermore, stakeholders in the area harbor social and cultural differences, which creates dissension over good and bad moral truths (Farrell 2015). Due to the variety of moral truths among stakeholders around the BDNF, I will be examining time stories, which are narratives that connect an individual's past, present, and future (Fincher 2014). Time stories will reveal individual stakeholders' relationships with grizzlies in the past and present. How do they individually define coexistence through those experiences? Moreover, I will venture to understand what impacts and realities can be foreseen by participants in the future of coexistence with the grizzly.

Emma Henggeler, Gina Clarkson, Kristy Crownhart

Subject: Health, Nutrition & Clinical Sciences

Category: Oral Presentation Session

Educational Intervention for Postpartum Depression in Primary Care: An Evidence-Based Practice Project

Postpartum depression (PPD) is a serious medical condition that negatively affects women, infants, and society. Approximately 12.5% of women nationally and 20% of women in Idaho will experience PPD after delivery. Multiple practice-guidelines have recommended screening and treatment for PPD in primary care since at least 2010. These recommendations have not been widely implemented.

This project provided primary care professionals with an educational intervention and resources for PPD. The aim was to see if the intervention would motivate evidence-based-practice-change as measured by change in pre/posttest importance and confidence scores and posttest open-ended replies.

Kathryn Hogarth

Subject: Engineering, Physical & Mathematical Sciences

Category: Poster and Oral Presentation Sessions

An Energy Dissipative Double Beam Coupling Beam

A predominant issue in the construction of high-rise buildings is seismic performance. Coupled wall systems are used to combat the problem of seismicity in mid to high rise buildings. In a high-rise building design, reinforced concrete structural walls are used for the general skeleton of the building and are used to resist lateral loading. In order to obtain the desired architectural aesthetic and functionality of a building, openings for windows, elevator shafts, doorways, etc. are necessary. If a structural wall is to act alone under lateral loading, the only force resisting the overturning moment from lateral loading at the base of the building is the flexural capacity of the wall; however, when structural walls are coupled together with coupling beams, the walls are no longer isolated and axial loads pick up to help resist the overturning moment, this allows the structural walls to act in a joint system. The Double Beam Coupling Beam (DBCBC) is an innovative design for a coupling beam to reduce congestion in the rebar cage. Through past experimental testing, the DBCBC was shown to be a competitive solution to rebar congestion in diagonally reinforced coupling beams (DCBs). This research expands on previous research on DBCBCs and modifies the design to use metallic dissipaters in the form of U-Shaped Flexural Plates (UFPs) in order to enhance the seismic performance of the DBCBC. Large-scale testing is ongoing to validate this concept.

Meesha Iqbal, Irene van Woerden

Subject: Education, Learning & Training

Category: Oral Presentation Session

Should We Offer Disaster Preparedness and Response Training Workshops Across Idaho? A Feasibility Study

It is important for individuals and families to prepare for potential disasters to enable communities to generate a consolidated response. It is estimated that 30% of residents of the 4th largest city in Idaho, Idaho Falls, are not prepared to deal with disasters. A one-day training workshop for healthcare professionals and students at Idaho State University in Pocatello was organized to build their capacity for acute disaster response and preparedness. This study assesses the impact of the workshop in improving knowledge and attitudes of the participants towards disaster management.

Meesha Iqbal, Irene van Woerden

Subject: Health, Nutrition & Clinical Sciences

Category: Oral Presentation Session

Individual and Community Preparedness to Disasters & Pandemics in Idaho Falls: A Cross Sectional Analysis

Communities form an integral component of disaster and pandemic preparedness. This study aimed to explore disaster/ pandemic preparedness - with a special focus on COVID-19 - at the household and community level among residents within 50 miles of Idaho Falls.

Sana Khajeh Pour, Cynthia Blanton, Ali Aghazadeh-Habashi

Subject: Health, Nutrition & Clinical Sciences

Category: Poster Session

Development of a Selective, Sensitive, and Rapid LC-MS/MS Assay for Studying the Effect of Concurrent Intake of Pepper and Turmeric on Curcumin Bioavailability in Human

Curcumin (CCM), the main ingredient of the culinary spice turmeric, is widely consumed in the food industry and medical research. Accumulating data show CCM anti-inflammatory properties. However, CCM's extensive metabolism makes its oral bioavailability low. We hypothesized that co-administration of turmeric with pepper increases the bioavailability of CCM, which could enhance its beneficial effects. This study aims to measure urinary CCM concentration to calculate its bioavailability when consumed alone or with pepper.

Matthew Kirkham, Pradeep Giri, Jared Barrott

Subject: Health, Nutrition & Clinical Sciences

Category: Poster Session

Three-Dimensional Cancer: Using Functional Precision Medicine in the Treatment of Synovial Sarcoma and Other Cancers

Rare cancers such as synovial sarcoma have few treatment options; current protocols have little recourse if not effective after a single round of treatment. Tumor organoids, or 3D cell cultures, derived from actual patient samples, hold the key towards finding targeted, effective therapies before a patient ever receives treatment. Concurrent experiments allow for bolstering or replacement of treatment in the event initial therapies are deemed ineffective. Functional Precision Medicine utilizes high-throughput methods to test over 100 chemotherapeutic drugs simultaneously.

Riley Lanfear, Rebecca Hale, Amy Burgin

Subject: Biological & Natural Sciences

Category: Poster Session

Effects of Intermittence and Springs on Greenhouse Gas Concentrations in Streams

Streams and rivers account for roughly 85% of carbon dioxide emissions from inland waters, but these estimates often fail to account for stream drying and groundwater C contributions. Large spatial and temporal variability in flow can challenge measurements of intermittent stream biogeochemistry. As a result, intermittent streams have historically been understudied compared to perennial rivers, despite their

ubiquity as over half of the global stream network length. Hydrology plays an important role in driving greenhouse gas emissions from intermittent streams, both due to stream network expansion and contraction and groundwater-surface water interactions. We asked: How do streamflow intermittence and spring presence affect the concentrations of dissolved greenhouse gasses?

Karla LaOrange

Subject: Education, Learning & Training

Category: Oral Presentation Session

The Effects of Neurological Impress Method Dyad Reading and Text Difficulty on Reading Achievement

Elementary students who demonstrate difficulty with reading with adequate speed are at risk of reading failure. Fluency is a predictor of reading comprehension (Kim et al., 2020). Students who read fluently tend to exhibit higher levels of comprehension (Stanovich & Stanovich, 1995). Neurological Impress Method (NIM) dyad reading model, a fluency intervention practice that utilizes challenging text, is a promising practice that research suggests could improve oral and silent reading fluency, as well as reading comprehension (Brown et al., 2018).

In this proposed experimental design study, low income third grade students will engage in NIM dyad fluency practice ten minutes per day using challenging text that is at least two grade levels above the reading level indicated for the reader. The control group will not receive the treatment. The study will employ a pre- and post-test design using measures of silent and oral reading fluency, word recognition, and comprehension. The study will attempt to determine the level of challenging text that provides the greatest growth for low income underperforming third grade readers when using the Neurological Impress Method dyad reading model. The study will also examine the effect of NIM dyad reading for the lead readers and attempt to identify the level of text difficulty that undermines reading achievement. The study will be conducted for a minimum of eight weeks in a low income school.

Kassidy Lee

Subject: Health, Nutrition & Clinical Sciences

Category: Oral Presentation Session

The Effect of Branched-Chain Amino Acid Supplementation on Cancer Treatment

Cancer continues to have a profound impact on society. In 2020 alone, over 1.8 million new cases of cancer were diagnosed in the United States. Cancer therapies are associated with a variety of adverse side effects; therefore, interventions that can mitigate these impacts are needed. The purpose of this literature review was to evaluate the effect of branched-chain amino acids (BCAAs) on the incidence and consequences of cancer therapies and duration of post-therapy cancer-free life.

Sarah Liftawi

Subject: Humanities, Behavioral & Social Sciences

Category: Oral Presentation Session

Does Participation in Extra-Curricular School Activities Prevent Bullying Victimization?

A Dueling Theoretical Approach

Despite decades of extensive research focused on bullying behaviors, bullying is a serious problem plaguing American schools. As a result, researchers are urged to utilize novel approaches when

examining/predicting bullying behaviors. The purpose of this research is to extend the existing literature on bullying victimization by using a novel, dueling theory approach incorporating Marcus Felson and Lawrence E. Cohen's Routines Activity Theory and George Homan's Social Exchange Theory. The goal is to analyze whether we can predict bullying victimization through involvement in extra-curricular school activities.

Joshua Lingbloom

Subject: Biological & Natural Sciences

Category: Oral Presentation Session

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

Mass movements are a widespread and frequently destructive occurrence in places with high topographic relief, active seismicity, intense precipitation, and/or glacially-oversteepened topography, such as northwest Wyoming's Teton Range. Because roads, trails, and other infrastructure or populated spaces often co-occur within these landscapes, landslide inventory maps serve as a foundational dataset for modeling landslide susceptibility and assessing the hazards and risks posed by future events. In this study, we use a 0.5-meter LiDAR elevation dataset, aerial imagery, and detailed field observations to produce a novel landslide inventory map encompassing Grand Teton National Park, the John D. Rockefeller, Jr. Memorial Parkway, and the National Elk Refuge. The current inventory includes ~950 mass movements throughout the study region. The diversity of landslide types and topographic and geologic settings enables us to prospect for patterns in the dataset. Toward this end, we apply three geostatistical methods. First, descriptive statistics identify broad patterns in the frequency and distribution of landslides in the park. For instance, the frequency and type of movements is spatially heterogeneous, with debris flows, rockfall, and earth flows comprising most observed mass movements but are clustered in unique settings. Second, we use logistic regression tests to explore the extent to which topographic domain (slope, curvature, aspect, and relief) and geologic substrate can predict the presence and absence of landslides. Finally, multinomial logistic regression ascertains the degree to which these same factors control mass movement type. Since the Teton Range has wide variations in topography, structure, and lithology, our statistical findings serve to advance our understanding of where and how mass movements occur in other landslide-prone regions. We also aim to share our findings with the public and management community through a StoryMap web portal, hopefully instigating further research into the triggers, history, and risk mitigation of landslides in the region.

Brianna Lords

Subject: Humanities, Behavioral & Social Sciences

Category: Oral Presentation Session

How the Humanities Help the Healing of Nature

The industrial world is filled with pollution that poisons not only the natural world (with all of its plants, non-human animals, and other living and nonliving components) but humans as well. For the longest time, it was easy to ignore the effects of pollution, that is until its effects began to creep into the lives of people. Rachel Carson's famous book *Silent Spring* is often credited with being the piece of work that made people and thereby governments care about the environment. One question that remains surrounding this book is how effective was it at causing environmental change in the United States? Is it fair to credit it with initiating so much transformation?

The struggle to heal the environment is far from over, and, honestly, there seems to be little hope for success at this point. If a book in the humanities, like *Silent Spring*, was able to spark change, then could other works from the humanities propel it further? How can the humanities help heal the environment? I

propose that the real piece of this puzzle missing is getting the general public to care and getting them to demand the government take action to resolve these issues. There are plenty of academics on board with healing the environment, and there are very few scientists that disagree about climate change being directly caused by humans. Therefore, little research needs to be done in those areas. The area that is lacking is in policy, and that is best driven by the people and politicians. It has been shown time and time again that most people care little for facts and statistics, so how can we get them to care about something like climate change? I believe the best way is to appeal to their humanitarian side through works like novels, especially apocalyptic ones.

Allison Loyola, Alok Bhushan, Prabha Awale

Subject: Health, Nutrition & Clinical Sciences

Category: Poster Session

Antiepileptic Drug and Teratogen Valproic Acid Induces Microglial Cell Death in a Valproic Acid Murine Model of Autism

Autism Spectrum Disorder (ASD) is a neurodevelopmental condition that affects approximately 1 in 44 children in North America, and its association with neuronal connectivity is an area of intense research. Valproic acid (VPA) is a multi-target drug widely used to treat epilepsy. It is classified as a teratogen and as a histone deacetylase inhibitor (HDACi) and fetal exposure to VPA increases the risk of ASD. The VPA model has been well characterized for behavioral and neuronal deficits, including hyperconnectivity. The cause of hyperconnectivity is poorly understood however, it is speculated that lack of pruning may be partly responsible for this anomaly. Microglia, the principal immune cells of CNS regulate dendrite and synapse formation during early brain development. The effect of VPA on microglia during early development has not been well characterized and may provide potential hints regarding the etiology of this disorder. Preliminary studies from our lab indicate that VPA reduces microglial number during peak periods of postnatal synaptogenesis in the mouse brain primary cortex. Nevertheless, the cause of this reduction is not known. Therefore, in this study, we determined the mechanism for reduced microglial numbers in the VPA model of autism.

Lazaro Martinez

Subject: Humanities, Behavioral & Social Sciences

Category: Poster Session

Mennonite Church USA in Idaho

On July 29, 1921, the Meridian Times published an anonymous letter stating that Mennonites were not appreciated in the area. The writer did not care for their anti-war stance. Less than one hundred years later, a Mennonite pastor asked Meridian residents their thoughts on Mennonites. The answers ranged from comparisons to the Amish to questioning if they were a Christian group. Reminders of Mennonite activity exist throughout Southern Idaho, but they are easily overlooked. The original Mennonites came to Idaho with the goal of colonization. Over a century later, Mennonite Church USA still has a presence in Idaho but, instead of enjoying the fruits of colonization, it is struggling to deal with assimilation.

Lazaro Martinez

Subject: Humanities, Behavioral & Social Sciences

Category: Oral Presentation Session

Haunted by Mennonites

Nestled in a Nampa neighborhood is the cemetery of what was once the Antioch Church. The cemetery is difficult to find as it is completely cut off from public view and has no public access. Antioch was the first Idaho church of what is known today as Mennonite Church USA. Antioch Cemetery, home to less than two dozen souls, is not only a direct link to the origins of Idaho Mennonites but also a reflection of the trajectory the Mennonite Church has taken over the past century. One can only imagine the reaction that the Antioch Cemetery congregation would have to the changes the Idaho Mennonites have been through. Through some creative retelling, that reaction may be revealed.

Kathryn Mason

Subject: Education, Learning & Training

Category: Oral Presentation Session

Trauma Awareness Sensory Strategies for the Virtual Classroom

Although the recognition of trauma in educational classroom settings has increased in recent years, the pandemic has caused additional challenges to an already sensitive environment. Additionally, it's crucial for classroom teachers to gain an understanding of how to further serve students in online platforms. Traditional, in-person schools have opportunities to make immediate connections with students, where body language and other factors can alert educators, however online platforms do not provide resources for the urgency of these student needs. Through a variety of different tools and classroom strategies teachers will be able to better serve and help students who have or are experiencing trauma. Learning intentions that focus on being successful in online environments will offer additional support for our students, maximizing engagement and growth. This includes stress reducing techniques, movement activities, and building communities. These strategies can be used across all grade level bands, but are specifically designed to support elementary classrooms.

Sameena Mateen, Srinath Pashikanti

Subject: Biological & Natural Sciences

Category: Oral Presentation Session

Novel Stereoselective Synthesis: A library of Cytotoxic Sphingoid Bases

Every year almost 600,000 people in the USA alone die of Cancer. Even to this day chemotherapy is the most affordable and the easily accessible option available. My research involves designing and synthesizing novel anti cancer scaffolds based on sphingoid bases which are the backbone of more complex molecules like ceramide which is also known as the "Tumor suppressing lipid". The ceramide cycle between Ceramide and the Sphingosine-1-phosphate is the key in regulating cell proliferation. The compounds synthesized in our lab include the analogs of Jaspine b and the analogs of spisulosine have shown very promising anticancer properties in various cell lines. The combination therapy has also shown some amazing results.

Sameena Mateen, Srinath Pashikanti, Rene Rodriguez

Subject: Engineering, Physical & Mathematical Sciences

Category: Poster Session

Synthesis and Characterization of Rigid Tetra-Alkyl Phosphonium Based Task Specific Ionic Liquids.

With the revolution in energy landscape across the globe and the growing demand for electric mobility has soared the demand for metals like Li, Co, Ni, Mn. For example, in electric vehicles cathode materials are made of NMC (nickel-manganese-cobalt) and Co helps in preserving the highest energy density. The significance of these materials has gained credence with the world countries owing to cut their greenhouse gasses by utilizing the greener technologies in the manufacturing, transportation and consumption. The main source of these metals have been the mining, extraction of these metals from ores and complex mixtures. These industrial grade methods utilize significant amounts of water, acids and organic solvents. Task-specific ionic liquid (TSIL) has been used for the extraction of these metals using chelation interactions.

Rana Mazumder

Subject: Business, Economics & Public Administration

Category: Oral Presentation Session

CEO-Chairperson Family Relationship and Financial Performance: Evidence from an Emerging Economy

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. We term this relationship a quasi-CEO-Chairperson duality and investigate its impact on firm performance in the context of the emerging economy of Bangladesh. Importantly, there is no specific prior research on this issue when we consider the setting of Bangladesh. Although the Bangladesh Securities and Exchange Commission (BSEC) addressed the issue of CEO duality in the 2012 revision of the Corporate Governance Index by strictly prohibiting firms from having the same person in both positions, no similar regulations have been enacted with relation to familial relationships. So, such an analysis will help to identify the economic prospect of the companies and bring some policy modifications for the businesses.

Rana Mazumder

Subject: Business, Economics & Public Administration

Category: Poster and Oral Presentation Sessions

Staring into the Abyss: Does Accounting Face a Looming Enrollment Cliff Crisis?

Being a building block of society and a powerhouse of development, education is an important issue to consider and any changes or concerns over it must be given the highest concentration. Though education has consistently seen increasing enrollment numbers, experts have begun to predict an oncoming enrollment cliff that will lead to reductions in the number of individuals enrolled in degree-seeking programs. Such reductions in enrollment may result in significant changes in the structures and operations of higher education entities. So, a deep-down look into this matter is of much significance. Again, this enrollment cliff may disproportionately affect certain disciplines. Therefore, a comprehensive analysis of the impact of the enrollment cliff on accounting degrees, having better marketability and more scope of placement for the graduates of this discipline, should be studied. Again, such an enrollment cliff may be

different at the undergraduate level in comparison to graduate-level education. Even the trends of the cliff may be diverse based on the gender, ethnicities, and other distinctive features of the students seeking to graduate with accounting degrees. So, such a comprehensive and conclusive analysis will facilitate understanding the comparative picture of the influences of the enrollment cliff. A comparison with the other disciplines or majors based on the comparative impact of the enrollment cliffs on such subject areas will also augment the understanding of the trends and contexts of the enrollment cliff.

Rana Mazumder

Subject: Business, Economics & Public Administration

Category: Poster Session

The Impact of Corporate Governance Status on Estimating Future Corporate Earnings

Being an important determinant of the performance of the corporate firms, earnings is also a fertile area for research, analysis, literature development, and accounting fundamentals enrichment. So, estimating the earnings of the businesses well ahead of time is a must to build solid plans for the different current and prospective stakeholders of the corporate organizations. Such estimates of the future earnings are also used as important inputs to the valuation of the securities because the future payoffs depend on the future earnings. But the prospects of future earnings are always uncertain and very hard to estimate accurately. In general, considering the reported accounting numbers and analyzing the accounting variables like ROA, cash flows, accruals are done to estimate the future earnings of the corporate firms. But there is a big gap of not addressing some other crucial aspects of the organizations, mostly the non-financial aspects, like the corporate governance characteristics of the organizations to estimate the future corporate earnings. This research fulfills this gap by analyzing the impact of the health of the corporate governance of the organizations on the ascertainment of the future earnings of the firms.

Sarah McCollum, Kaden Kunz, Brenden Meldrum, Jeffery Okojie, Jared Barrott

Subject: Health, Nutrition & Clinical Sciences

Category: Poster Session

Development of a Novel Synovial Sarcoma Therapy

Synovial sarcoma is a cancer of the muscle tissue which primarily affects young adults and teenagers. Because of its rarity, little advancement has been made in developing new treatments for this disease. Only 40% of patients diagnosed with this cancer will survive it, highlighting the need for advancements in this field. One factor which contributes to the difficulty of developing therapy for this cancer is the lack of unique cell surface proteins which can be used to differentiate cancer cells from healthy cells. However, we have identified the cell surface receptor Oncostatin M Receptor (OSMR) as being over-expressed in synovial sarcoma tissue with low expression in non-malignant tissues, making it an ideal target for therapy. Here we show the development of an anti-OSMR radioimmune therapy (RIT) and show that this novel drug efficiently targets sites of disease without accumulating in other vital organs. We also show the use of this drug as a diagnostic and imaging tool useful in the monitoring of synovial sarcoma, and believe this drug will be beneficial in the treatment of this cancer.

Pedro Mena

Subject: Business, Economics & Public Administration

Category: Oral Presentation Session

Survey of Markets for Nuclear Power in Western North America

Nuclear power can be a polarizing form of energy. Public perception has made it difficult to construct new facilities and retain existing ones. Despite this, nuclear power still accounts for 20% of electricity produced in the United States and interest has increased recently with the development of SMR technology. This is due to a number of advantages that make nuclear power attractive, such as carbon-free emissions. While this concept has led many to believe in a nuclear renaissance, little or no discussion has been done on where these new plants will be located and who will be the end customers for the produced electricity. This paper analyzes markets in western North America to determine which markets could be consumers of nuclear power, as well as which would be viable locations.

Justin Miller, Rebecca Hale, Sarah Godsey, Brittany Folk, Tiffany Jeske, Isreal Martinez

Subject: Biological & Natural Sciences

Category: Oral Presentation Session

Changing Patterns of Organic Carbon Processing Due to Novel Drought-Induced Stream Intermittency

Streams and rivers transport and process significant amounts of organic carbon (OC). Estimates of stream contributions to global carbon cycling have frequently focused on perennial streams; however, approximately 50% of streams in the United States are intermittent or ephemeral, and intermittency is increasing due to climate change. OC transformations and export are likely to change substantially as previously perennial streams experience novel drying. We asked: How does novel stream drying affect rates of organic carbon processing and export in a historically perennial stream? We expected that stream drying would reduce rates of carbon processing (e.g., stream metabolism), while increased OC storage during drying would result in increased OC concentration at rewetting. However, streams experiencing novel drying will likely be more resilient than historically intermittent streams since they should retain a more robust biological community. High-frequency monitoring of dissolved oxygen, water level, dissolved organic matter, and weekly water samples for OC concentration and quality were collected for two years in a previously perennial stream that experienced several weeks of drying in fall 2021. Daily rates of gross primary production and ecosystem respiration were estimated by single-station modeling of diel oxygen dynamics. Initial results have shown that fDOM concentrations decreased in the days prior to the reach drying, and were higher after the stream rewet, suggesting that stream drying resulted in reduced rates of OC processing. Novel stream drying due to climate change and drought is already changing stream OC transformations and export, with important implications for global carbon budgets.

Megan Mondragon, Mary Nies, Karen Stevens, Tina Mladenka

Subject: Education, Learning & Training

Category: Oral Presentation Session

Postpartum Depression Education for Staff at Women Infant and Children Clinics in Idaho

How does educational training on postpartum depression impact staff's knowledge of postpartum depression compared to pre-education knowledge within two Idaho health districts, Women Infant and Children clinics?

Postpartum depression (PPD) is a major depressive disorder occurring within one year of having a baby and is the most common complication associated with pregnancy. If left untreated, PPD can have detrimental effects on a woman and her child. Therefore, identifying this disease is imperative, yet it frequently goes undiagnosed. Studies have recurrently identified that women who participate in Women Infant and Children programs (WIC) throughout the United States experience PPD symptoms at higher rates than the general population. Staff working within WIC clinics regularly interact with women in the postpartum period, typically more than medical providers. With proper education, this staff may play a key role in improving the identification of this disease.

Olivia Morzenti, Kristen Calley, Monica Colleen Stephenson

Subject: Humanities, Behavioral & Social Sciences

Category: Oral Presentation Session

Implicit Racial Preferences Among Dental Hygienists

Implicit biases affect the patient-provider relationship, including shared decisions, treatment goals, patient adherence, and interpersonal communication. While extensive literature exists on implicit bias among healthcare professionals, there is a dearth of research on implicit racial bias among dental hygienists. Findings from this study may contribute to dental hygienists becoming more aware of their own racial biases which may positively impact the patient-provider relationship, clinician decision making, and oral health disparities. The purpose of this study is to investigate implicit racial preferences among dental hygienists.

Ulrich Moutcheu Demengam

Subject: Business, Economics & Public Administration
Engineering, Physical & Mathematical Sciences

Category: Poster and Oral Presentation Sessions

Make Fundraising Accessible to Africans through Mobily Money

My journey started when I was particularly touched by a fundraising campaign on a popular platform, aiming at raising funds to help someone in my home-country Cameroon. Looking at the campaign's information I was surprised to see it wasn't the person located in Cameroon but someone in America organizing the campaign on behalf of that person. I later found out that all campaigns for Africa follow the same pattern. Why are all those campaigns hosted in America or Europe? Will the money go to the person in need and what if the middleman misuses it?

The main fundraising platforms do not operate in Africa. Everyone of us already came across an advertisement asking us to donate money for Africans to an Association or a NGO. In America or Europe every person in need can host his/her own campaign and collect the funds him-/herself on gofundme or similar platforms. But not in Africa? Also can those NGOs and Associations really reach all the people in need on that big continent? My Project aims at solving these problems. In fact people in Africa do not use regular bank accounts. A low rate of the population even has a bank account. That makes it hard for our platforms to operate there.

Sowmya Natarajan, Irene van Woerden, Ryan Lindsay

Subject: Health, Nutrition & Clinical Sciences

Category: Oral Presentation Session

Risk Indicators of Gum Disease and Dental Visit Status of Women Who Used Female Hormonal Medications; Insights from the NHANES

Changing hormone levels in women caused by medication for birth control and hormonal therapy are a risk factor for gum disease. They cause gingivitis; one of the first signs of gum disease. Untreated gum disease has detrimental health consequences. In the United States, about 14% of women 15-49 years, reported contraceptive pill usage. It is crucial to surveil and investigate the adverse outcomes caused by these medications. This study examines the latest dental visit status and studies the association between hormonal medications and the risk indicators of gum disease in women aged 30-44 years.

Jordan Oman, Nirajan Bhattarai, Sabina Yeasmin, Sameena Mateen, Farjana Afrin

Subject: Biological & Natural Sciences

Category: Oral Presentation Session

Discovery of New Positive Allosteric Nicotinic Receptor Modulators for Hearing Loss

Nicotinic acetylcholine receptor (nAChR) $\alpha 9$ and $\alpha 10$ subunits are mainly expressed in hair cells of the inner ear and are involved in auditory processing. Recently ascorbic acid has been identified as a small molecule potentiator (hit) for $\alpha 9/\alpha 10$ nAChR. The $\alpha 9/\alpha 10$ nAChR is not only found to be a potential target for age and noise-related hearing loss but may also be involved in targeting chronic pain, as well as breast and lung cancers.

N. Evelin Paucar, Chikashi Sato

Subject: Engineering, Physical & Mathematical Sciences

Category: Poster and Oral Presentation Sessions

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

Energy, water, and food are essential for the development of a sustainable society and national security. As the world population grows, the demand for energy, freshwater, and food increases, and urbanization requires wastewater treatment. Nutrients are essential for plant growth, and consequently for a food supply. On the other hand, excessive levels of nutrients in water can harm the environment and fisheries due to eutrophication, red tide (toxic algae), hypoxia, and/or attenuation of sunlight. Accordingly, nutrients are often removed from wastewater prior to discharge to a receiving water body.

Microbial fuel cell (MFC) has emerged as a technology capable of generating electricity using wastewater as an energy source. In comparison with the energy-intensive processes currently employed in the conventional wastewater treatment plants (WWTPs), MFCs have the advantage that they can generate electricity with the potential ability to separate nutrients from wastewater.

In the ISU Environmental Engineering laboratory, a passive MFC technology is being developed, which can separate phosphorus (P) and nitrogen (N) from wastewater, utilize them to grow edible plants and simultaneously generate electricity. In this effort, an MFC is integrated with a hydroponic system (so-called the MFC-HyP system). The MFC-HyP system is expected to be a novel technology to produce food without soil and external sources of fertilizer while generating electricity using wastewater as a source of energy

and nutrients. If successful, the MFC-HyP system can be a sustainable eco-friendly technology that can provide benefits to societies around the world.

Gabriela Perez, Danielle Richner, Luis Rodriguez, Shannon Lynch

Subject: Humanities, Behavioral & Social Sciences

Category: Poster Session

Psychological Flexibility Mediates the Effect of Interpersonal Violence on Feelings of Shame

Experiences of interpersonal violence (IPV) can lead to a sequelae of negative outcomes, including feelings of shame. However, individual characteristics can influence the psychological impact of traumatic experiences. Having higher levels of psychological flexibility has been shown to mediate the relationship between IPV and psychological disorders and symptoms, but this relationship has not been tested with feelings of shame. The present study aims to investigate the potential protective function of psychological flexibility, and hypothesizes that psychological flexibility mediates the relationship between IPV and shame.

Arina Ranjit, Sana Khajeh Pour, Ali A. Habashi

Subject: Health, Nutrition & Clinical Sciences

Category: Poster and Oral Presentation Sessions

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

The renin-angiotensin system (RAS) is an intricate endocrine cascade that elicits diverse biological functions. Angiotensin II (Ang II), as a central component of the RAS, mediates inflammatory diseases by binding to the Angiotensin type I receptor (AT1R). In contrast, its binding to AT2R provides functional antagonism to AT1R axes. Novokin, a synthetic peptide, activates AT2R and can be considered a potential drug candidate for alternative therapy for inflammatory diseases if its plasma stability and pharmacokinetics could be improved. Here, we have developed a novel bone-targeting novokin Conjugate (Novo Conj), which binds to the bone, utilizes it as a reservoir while protecting it from enzymatic and hydrolytic degradation. We propose to (i) synthesize, characterize, and test stability and bone binding ability, (ii) define pharmacokinetics, and (iii) study the in vitro and in vivo activity of Novo Conj in various cell lines and an animal model.

Amme Redington, James Stoutenborough, Kellee Kirkpatrick

Subject: Humanities, Behavioral & Social Sciences

Category: Oral Presentation Session

Raising Moral Issues on Rising Temperatures: An Analysis of Climate Change, Trust, Risk Perception, and Ecological Values

The Climate Clock, a collaborative project that counts down the remaining time humanity has left to act against climate change, reveals we have less than seven years before the worst effects of climate change become irreversible. As the window of opportunity narrows, it is crucial that the human population is motivated to take action that mitigates the impacts of climate change. One way to accomplish this is to

recognize climate change as a moral imperative. Because morality moves people to act, it is important to understand what propels the public to engage in pro-environmental behavior.

Erika Richards

Subject: Humanities, Behavioral & Social Sciences

Category: Oral Presentation Session

Fearing Female Sexual Predators: An Analysis of the Determinants of Concern Regarding Female Sex Offenders

When the phrase “sex offender” is mentioned, it is likely that the average person conjures up an image of a frightening and leering man that has been caught up in a Dateline NBC To Catch a Predator sting operation. The reason for this is simple. The media tends to focus primarily on male sex offenders. While there are high profile situations involving female teachers taking advantage of high school boys, depictions of sex offenders in news and popular media are almost always of men. Scholarship suggests that this uneven representation in media could influence public perceptions of the typical sex offender. Consequently, it is likely that the public has amplified concern about male sex offenders and muted concern about female sex offenders. This imbalance in concern for male and female sex offenders could also be influenced by how the public views the gender roles of men and women in society, particularly when it comes to sexual aggression. Therefore, this project seeks to examine the role media consumption and publicly held gender stereotypes influence concern about female sex offenders. Utilizing a national public opinion poll, this project examines the determinants of risk associated with female sex offenders, including media consumption, gender stereotypes, and trust in law enforcement. Preliminary results suggest that each of these factors play a role in shaping public opinion toward female sex offenders.

Katie Roberts, Victoria Scharp, Catherine Off

Subject: Health, Nutrition & Clinical Sciences

Category: Poster Session

The Sustainability of Intensive Comprehensive Aphasia Programs (ICAPs)

Aphasia is a language disorder, largely characterized by word finding impairments, that commonly occurs following a stroke. Aphasia is one of the most detrimental disorders to an individual’s health related quality of life (Lam et al., 2010). Many current and commonly used treatment approaches lack intensity and comprehensiveness to see meaningful gains for people with aphasia (e.g. Beeson et al., 2002; Rogalski & Edmonds, 2008). Intensive Comprehensive Aphasia Programs (ICAPs) are a potential solution to this limitation in aphasia rehabilitation. ICAPs align with WHO-ICF recommendations by providing intensive therapy in individual and group settings for a cohort of individuals with aphasia who begin and end the program at the same time (Worall et al., 2011; Rose et al., 2013). Currently there are only 21 of these programs worldwide, including one here at ISU (Rose et al., 2021). While ICAPs are effective for some individuals with aphasia, there are challenges to implementing and sustaining an ICAP. The factors that contribute to the sustainability of ICAPs are unknown. This study sought to identify the characteristics of sustained ICAPs from the perspective of international aphasiologists involved in a current ICAP.

Katharine Roth, Joshua Swift

Subject: Humanities, Behavioral & Social Sciences

Category: Poster Session

The Relationship Between Current and Ideal Therapist Personality Matching and Collaboration, the Relational Bond, and Satisfaction in Psychotherapy

Previous research has shown that preference accommodation is associated with more satisfaction in therapy (Swift et al., 2018). Preference accommodation has also been shown to be related to the therapeutic alliance (Windle et al., 2020; Iacoviello et al., 2007) and stronger therapeutic alliances have been associated with more satisfaction in therapy (Fluckiger et al., 2018). However, little is known about how preference accommodation for therapist personality traits might be associated with the therapeutic alliance (specifically, the therapeutic bond and collaboration) and satisfaction with therapy and the therapist.

Pooja Sapkota, Nirajan Bhattarai, Sabina Yeasmin, Kavita Sharma, Marvin Schulte

Subject: Health, Nutrition & Clinical Sciences

Category: Poster Session

Novel Two-Electrode Voltage-Clamp Recording System with Automated Robotic Rapid Perfusion and 3D Printed Chamber

Introduction: Two-electrode voltage clamp (TEVC) recording in *Xenopus laevis* oocyte is a conventional electrophysiological technique used to investigate the functions and regulation of ion channel proteins. **Statement of problem:** Previous custom-made conical oocyte chamber, built nearly 20 years ago, needed improvement in design and operational process for sustainable production and bubble-free rapid perfusion. Bubble injection into the chamber is primarily dependent upon the drug and buffer injection system, which also needed an upgrade.

Brenlee Shipps

Subject: Biological & Natural Sciences

Category: Oral Presentation Session

The Topography of Diet: Using molaR to Infer Turtle Diet

We can directly observe the diets of modern turtles by analyzing their feces or flushing their stomachs, and we can watch how turtles use their feeding anatomy while they are eating. Even among fossil specimens, most research on turtle diets and feeding structures focuses on either the way muscles used for mastication developed or the roles turtles played in their ecosystems. Because options for understanding turtle diets in the fossil record are limited, we need an osteological correlate for the diets of turtles and other beaked animals. In order to find this osteological correlate, I am using extant turtles to ground-truth the use of OPCr quantitative morphological techniques on beaked animals.

Alexa Shoemaker

Subject: Humanities, Behavioral & Social Sciences

Category: Poster Session

Access

The word access may insight thoughts of drinkable water or VIP, but what about education? Access is defined by the Merriam-Webster Dictionary (2022) as “permission, liberty, or ability to enter, approach or pass to and from a place or to approach or communicate with a person or thing” or the “freedom or ability to obtain or make use of something” (p. 1). With so many of our interactions occurring virtually, access takes on a new meaning. Studies have found that websites “provide more gratifications for both getting news and mobilizing people to action than do traditional media” (West & Turner, 2021, p. 221). Having a website is becoming an essential, integral piece of inclusive marketing and providing access. As higher education evolves to consist of more hybrid, asynchronous, and online courses, this becomes increasingly true. The INCLUDE (Idaho Needs Connectivity Leading University Distance Education) Program provides increased opportunities for Idaho high school students in rural communities to participate in select ISU Dual Enrollment classes. By using cutting-edge distance learning technology that duplicates as closely as possible an in-person college classroom experience, students don't have to leave their school buildings regardless of rurality. This creative project puts communication theories into practice to increase inclusive access to higher education throughout southeastern Idaho. Referencing the Uses and Gratifications Theory, Uncertainty Reduction Theory, and Cultural Studies to guide decision-making, a website was conceptualized and built to give the INCLUDE Program an online presence. Engagement with the website will be tracked and used to assess its impact and usability for the target audience.

Allegra Sundstrom, Morey Burnham

Subject: Humanities, Behavioral & Social Sciences

Category: Oral Presentation Session

Identifying Opportunities for and Obstacles to Adoption: Symbolic Meanings and Material Effects of Grizzly Bear Conflict-Reduction Tools

Carnivore conflict with humans and livestock played a major role in the decrease in carnivore populations across the American West. Federal management efforts have prioritized the recovery and expansion of those carnivores but have largely neglected the social impact these policy decisions may have on rural ranching communities. However, to accommodate the spatial needs of grizzly bears (*Ursus arctos horribilis*) we must also accommodate the livelihood and cultural needs of people. One method of mitigating conflict between livestock and grizzly bears is the dissemination and use of conflict-reduction tools, including electric fencing and livestock guardian dogs. Though conflict-reduction tools have proven relatively successful in many settings, some ranchers are still hesitant to integrate these tools and technologies into their operations and management plans. Further, landowner opposition to or acceptance of technology, such as conflict-reduction tools, is increasingly believed to be affected by their “interpretations of what the technology and the location or ‘place’ are seen to represent or symbolize” (McLachlan, 2009). This indicates that tools can be symbolic of both state institutions and a connection to the landscape, which have a determining effect on conflict-reduction tool adoption. Identifying the symbolic meanings of conflict-reduction tools will help researchers, managers, and community conservation groups to increase adoption of these tools, therefore benefiting bear conservation efforts. In this study, we focus on the High Divide; the region between the largest grizzly bear recovery zones – the Greater Yellowstone and Northern Continental Divide ecosystems. The High Divide is an ecosystem comprised of primarily private lands, with landowners holding a range of social, political, and environmental values. We will conduct semi-structured

interviews in four valleys around the High Divide. To facilitate the connectivity of these two major grizzly bear populations by means of successful conservation efforts, it is imperative to reduce conflicts and negative interactions.

Rifat Ara Tasnim

Subject: Education, Learning & Training

Category: Poster Session

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

As a consequence of COVID-19 and the other changes in social aspects, there is an escalation in the number of patients with mental illness. Although there are abundant effective psychotherapy strategies available, a substantial number of people avoid it due to misconception and stigma. Serious games can be a feasible solution to purvey mental healthcare to a significant percentage of people. The availability of smartphones unveils the opportunity to provide therapeutic facilities via digital gaming. Technology like Augmented Reality with its interactive features, has unlocked numerous opportunities in the mental health domain. For our experiment, we have designed and developed a game, ARCoD, accessible in smartphones, to measure Cognitive Distortions. We hypothesized that using our specifically designed game, it might be possible to assess the level of 5 different Cognitive Distortions (Arbitrary Inference, Catastrophizing, Black and White Thinking, Emotional Reasoning, and Labeling) in an individual playing the game.

Lauren Tucker, Keith Reinhardt, Daniel Johnson, Ryan Emanuel, Kevan Minick, David Love, Justine Rojas

Subject: Biological & Natural Sciences

Category: Poster Session

Coordination of Sap Flux and Water Storage at Various Heights and Depths Inside Stems in Two Tree Species of Differing Hydraulic Strategies

Trees and forests are large reservoirs of terrestrial water and return ~50% of the water from precipitation back to the atmosphere. Thus, understanding how trees store and transport water is critical information for modelers and land managers. Recently, multiple labeling studies have shown that trees store water for up to weeks and even months. However, the functional importance of this long-term stored water for whole-tree water relations is unclear.

Kasey Ward, Melody Weaver

Subject: Health, Nutrition & Clinical Sciences

Category: Poster Session

Action Theater for Community Stroke Education

A stroke is a medical emergency and poses a significant burden for rural communities. Rural communities are at a disadvantage regarding access to health care services (CDC 2017). Community education regarding stroke signs and symptoms is highly underutilized. Hospitals can use their healthcare knowledge and expertise to promote learning environments to rural communities by using art to educate regarding the signs and symptoms. To become a stroke-certified hospital through the Idaho Time Sensitive Emergency System (TSE), hospitals must have a yearly community stroke education event (IDHW, 2021). A benefit for hospitals to become stroke certified is to improve outcomes for stroke patients. Applied theatre for health education is a platform to address health issues by using a theatrical expression to enhance learning and improve

health outcomes (Prendergast & Saxton, 2016). This study examines how implementing an action theater performance written to educate a rural community regarding stroke awareness and evaluate its usefulness as a tool to educate communities each year during stroke awareness month in May.

Shelby Weber, Shannon Lynch

Subject: Humanities, Behavioral & Social Sciences

Category: Poster Session

Understanding the Role of Emotion Regulation in the Relation Between Experiences of Childhood Trauma and Substance Use Among Incarcerated Women

Incarcerated women report elevated rates of exposure to childhood trauma and substance use (Fazel et al., 2017; Messina & Grella, 2006; Lynch et al., 2017; Walsh et al., 2011). Poorer emotion regulation has been associated with child trauma exposure (Cloitre et al., 2019) and substance use (Kober, 2014) independently, but have not been examined in a concurrent model. The present study examined the indirect effect of emotion regulation on the relation between experiences of childhood abuse and substance use (i.e., alcohol and drug use).