



Virtual
Graduate Research
SYMPOSIUM

Showcasing Scholarly
& Creative Works



Idaho State University



Event Program

April 7, 2021



**Idaho State
University**

Graduate
School

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Letter from the Associate Dean of the Graduate School

Welcome!

We are thrilled to have 68 graduate students present at our 7th Annual Graduate Research Symposium! Our graduate students are incredibly talented, and to provide the space to let those outside of their department witness this talent is an immense privilege.

The Graduate Research Symposium is one of my favorite events every year. The GRS allows all graduate students from all programs to showcase a small part of the passion they have studied and worked on, sometimes for years. This year, the cohort of presenters should be particularly applauded as they have worked continuously on their work during a time of unknowns, adaptations, and, at times, hardships.

Whether you are an undergraduate student seeking ideas for your future, a community member looking for your next top-notch employee, or an ISU family member with a connection to the students, welcome. I invite each of you to absorb, reflect, and discuss all the knowledge shared today.

Dr. Tracy Collum
Associate Dean of the Graduate School



Letter from Event Planner

Dear friends,

Welcome to the 7th Annual (Virtual) Graduate Research Symposium. The mission of the Graduate School at Idaho State University is to promote and support [academic and creative] excellence in graduate education. Thank you to the faculty mentors, professional colleagues and others who inspired their work and helped our office meet our mission. We are excited to celebrate our graduate students and their accomplishments in this year's event.

Anna Siddoway
Graduate Pathway Specialist, Graduate School

Agenda

Wednesday, April 7

Main Event Room

Meeting ID: 842 3136 4573

Passcode: 722669

9:00 AM **Event Opening**
Tracy Collum, Associate Dean for Graduate School

9:10 AM **Oral Presentations – Move to Appropriate Zoom Room**

BENGAL Zoom Room

Meeting ID: 832 0827 1272

Passcode: 521649

Biological & Natural Sciences

- 9:15 AM DNA-methylation profiles of Redband Trout from desert and montane environments
Benjamen Kline
- 9:30 AM The Topography of Diet
Brenlee Shipps
- 9:45 AM Enhancement of Genomic Instability by Epigenetic Dysregulation in Osteosarcoma
Kaniz Fatema
- 10:00 AM Saturated hydraulic conductivity as a driver of flow permanence in Gibson Jack Creek,
Bannock County, Idaho
Micahel Ferraro
- 10:15 AM Table Butte a Monogenetic Volcanic Anomaly on the Eastern Snake River Plain
Shanon Brailsford
- 10:30 AM Stream Intermittency Across Space and Time
Thane Kindred

Health, Nutrition & Clinical Sciences (1)



- 10:45 AM **Prevalence of Oral Mechanism Examinations in Clinical Assessment by Speech-Language Pathologists**
Alicia Martin-Cowger
- 11:00 AM **An Atypical Presentation of Posterior Canal Cupulolithiasis BPPV**
Elise Morrow
- 11:15 AM **Developing probes targeting Sphingolipid Metabolizing Enzyme by Synthesis of SPhK I / II inhibitors**
Farjana Afrin
- 11:30 AM **Periodontitis Susceptibility in Patients with WHIM syndrome**
Laurie Brenchley
- 11:45 AM **Diet Quality Impact on Mental Health of Female Collegiate Athletes during COVID-19**
Natalie Christensen

ORANGE Zoom Room

Meeting ID: 823 8645 3856

Passcode: 970817

Health, Nutrition, & Clinical Sciences (2)

- 9:15 AM **Distortion Product Otoacoustic Emissions Testing in Canines**
Samantha Will
- 9:30 AM **Interactions of viral glycoproteins to the nicotinic acetylcholine receptors in the CNS**
Sabina Yeasmin
- 9:45 AM **Nutrition and Health Behaviors Influenced by COVID-19 using the Information Motivation Behavior (IMB) Health Model**
Sydney Knight
- 10:00 AM **Implementing the SMART Medical Clearance Form to improve emergency psychiatric care: A Quality Improvement Project**
Thomas Murphy

Humanities, Behavioral & Social Sciences

- 10:15 AM **Single Case Meta-Analysis of Parent-Child Interaction Therapy (PCIT) for Middle Childhood Disruptive Behavior**
Christina Strauch
- 10:30 AM **Boomers, Doomers, and Zoomers: Examining American's Existential Moment**
Christopher Brown
- 10:45 AM **A Meta-Analytic Evaluation of the Effectiveness of the Collaborative Assessment and Management of Suicidality (CAMS) Intervention Compared to Alternative Treatment Conditions**
Elizabeth Penix



- 11:00 AM **Transitions in Tool Technology Relating to Social Changes Among Prehistoric Pacific Northwest Coastal Groups**
Gabrielle Bratt
- 11:15 AM **Prevalence of Emotional and Physical Intimate Partner Violence Among Married Women in Pakistan**
Meesha Iqbal
- 11:30 AM **Understanding the Effect of Collegiate Student Athlete's Perceived Stigma and Mental Health Stressors have on Help-Seeking Tendencies toward Professional and Personal Sources**
Kylie Greenwell
- 11:45 AM **Evaluating the effectiveness of Local Adaptation of Plan of Action (LAPA) in reducing climate change vulnerability using Livelihood Vulnerability Index: A case from Western Nepal**
Subash Pandey

ROAR Zoom Room

Meeting ID: 839 0799 7476

Passcode: 545969

Engineering, Physical & Mathematical Sciences

- 9:15 AM **Neutron Skin Thickness Measurement in 208Pb using Electroweak Interaction Probe**
Devi Adhikari
- 9:30 AM **Auto Machine Learning Applications for Nuclear Reactors**
Pedro Mena
- 9:45 AM **Autonomous Ground Vehicle For Virus Detection And Removal**
Taher Deemyad
- 10:00 AM **Cinco: Progress on a Compact 5-MA Pulsar for High Energy Density Physics**
Travis Bejines
- 10:15 AM **Understanding the Effects of Wind on the Stability of Explosive Eruption Plumes**
Tyler Paladino
- 10:30 AM **Analytical and Experimental Investigation of Modular Structural Concrete Insulated Panels**
Usha Pant



Business, Economics & Public Administration

- 10:45 AM Benevolent or Bearable? How Online Graduate Students Determine that Faculty Care
Jeffrey Morgan
- 11:00 AM CEO-Chairman Family Relationship and Financial Performance: Evidence from an Emerging Economy
Rana Mazumder

Education, Learning & Training

- 11:15 AM Supervisee Perception of Supervisor Requests for Feedback and the Impact on the Supervisory Alliance
Beverly Hines
- 11:30 AM The Morrill "Land Grant" Acts and How They Provide Access to Higher Education for All
Kurt Schiess
- 11:45 AM Closing the Gap? How Grit Impacts Hispanic Students' Retention
Sandro Benitez

Return to Main Room for Keynote & Awards Luncheon

Meeting ID: 842 3136 4573

Passcode: 722669

- 12:00 PM **Keynote & Awards Luncheon**
Tracy Collum, Associate Dean for Graduate School
- Welcome**
Karen Appleby, Interim Vice President for Academic Affairs & Provost
- Keynote Speech**
Dr. Marianne Walck
Deputy Laboratory Director for Science and Technology & Chief Research Officer
Idaho National Laboratory (IINL)
- 1:00 PM **Poster Presentations – Move to Appropriate Zoom Room**



BENGAL Zoom Room

Meeting ID: 832 0827 1272

Passcode: 521649

- 1:05 PM **Strategies towards Inhibition of Virulent Bacterial Phospholipases: A Review**
Sameena Mateen
- 1:10 PM **Distortion Product Otoacoustic Emissions Testing in Canines**
Samantha Will
- 1:15 PM **Insight on Fraud Factors and Fraud Players' Motives: A Literature review**
Rana Mazumder
- 1:20 PM **Oncostatin M Receptor as a Therapeutic Target of Radioimmune Therapy in Metastatic Synovial Sarcoma**
Sarah Luelling
- 1:25 PM **The Influence of Perceived Parental Acceptance of Gender Diverse Identity Among Autistic Individuals on Quality of Life**
Megan Bigham
- 1:30 PM **ACL Injury Prevention Program Promotion**
Andrea Nef
- 1:35 PM **Developing a new of post-traumatic stress disorder in zebrafish**
Jamison Lee
- ~~1:40 PM **Cricket powder as a protein source, a sensory evaluation**
Biyu Yang~~
- 1:45 PM **Design/implementation of a novel insect enclosure and addressing issues regarding methodology in pollination ecology**
Troy Tetreault
- ~~1:50 PM **Structure Activity Studies of $\alpha 9$ containing/ $\alpha 9\alpha 10$ Nicotinic Acetylcholine Receptors(nAChR)**
Nirajan Bhattarai~~
- 1:55 PM **Changes in Therapist-Reported Competence with Trauma-Focused Cognitive-Behavioral Therapy During a Community-Based Learning Collaborative**
Megan Bird
- 2:00 PM **Upending Shortages in School Psychology**
Jon Carlson
- 2:05 PM **Prenatal predictors of breastfeeding difficulty: Exploring connections between maternal trauma, cortisol, and depression**
Lillian Bengtson



ORANGE Zoom Room

Meeting ID: 823 8645 3856

Passcode: 970817

- 1:05 PM **Negative Feedback Perception is Associated with Increased Burnout in PA Students**
Carrie Yuan
- 1:10 PM **An approach towards Ceramide Sphingolipid quantification by Extraction of microsomal fraction from prostate cancer cells**
Farjana Afrin
- 1:15 PM **Genetic Analysis of Native Redband Trout Legacy Samples in Idaho**
Tyler Breech
- 1:20 PM **Periodontitis Susceptibility in Patients with WHIM syndrome**
Laurie Brenchley
- ~~1:25 PM **Impact of a TF-CBT Focused Learning Collaborative on Supervision Quantity and Quality and Differential Effects on Therapists' General and Protocol-Specific Adherence**
Christina Strauch~~
- 1:30 PM **Ototoxicity Associated With COVID-19 Drugs**
Yuying Huang
- 1:35 PM **How Scansis Functions: Lessons from the Houston Astros Sign-Stealing Crisis**
LeAnne Woods
- 1:40 PM **Polypharmacy and Potentially Inappropriate Medication Prevalence in Rural Older Adults in Caribou County, Idaho**
Mallory Davis
- 1:45 PM **Social Reactions to Disclosure of Interpersonal Violence: Effects on Coping Self-Efficacy in Incarcerated Women**
Gabriela Perez
- 1:50 PM **Effects of Non-contact Boxing on Fall Risk in Patients with Parkinson's Disease**
Rachel Joern
- 1:55 PM **Bone Targeted Delivery of Novokinin for Improved Pharmacokinetics and Therapeutic Effects**
Arina Ranjit
- 2:00 PM **Are patients at risk for oral cancer being screened for the disease?**
Sowmya Natarajan
- 2:05 PM **Enhancement of Genomic Instability by Epigenetic Dysregulation in Osteosarcoma**
Kaniz Fatema



ROAR Zoom Room

Meeting ID: 839 0799 7476

Passcode: 545969

- 1:05 PM **Training Module for Community Health Workers on COVID-19 During the Pandemic**
Joanne Adams
- 1:10 PM **Improving In Vitro Analysis and Drug Panel Screening of Patient-Derived Cancer Organoids Through 3D Bioprinting**
Matthew Kirkham
- 1:15 PM **Screening & Awareness of Breast Cancer in an Urban Slum of Pakistan: A Pilot Study**
Meesha Iqbal
- 1:20 PM **Unite Idaho to Protect Against Child Sexual Abuse**
Sheyenne Hunzeker
- 1:25 PM **Repurposing of FDA-Approved Drugs to Prevent Cisplatin-Induced Ototoxicity**
Shaikh Emdadur Rahman
- ~~1:30 PM **Factors influencing parent-child interactions**
Sinead Martin~~
- 1:35 PM **The Morrill "Land Grant" Acts and How They Provide Access to Higher Education for All**
Kurt Schiess
- 1:40 PM **Vehicle-dwelling American Nomads and Disparities in Healthcare**
Ruth Tretter
- 1:45 PM **Prolactin Induces Glycogen Catabolism and Glucose Secretion in Mink (Neovison vison) Uterine Epithelial Cells: A Possible Contribution to Reproductive Success**
Alexander Lopez
- 1:50 PM **Identifying and Validating Plasma Circulating Renin-Angiotensin System Components as Reliable Biomarkers of Rheumatoid Arthritis**
Sana Khajehpour
- 1:55 PM **Race-Based Trauma**
Anna Baird
- 2:00 PM **Diet Quality Impact on Mental Health of Female Collegiate Athletes during COVID-19**
Natalie Christensen
- 2:05 PM **Analytical and Experimental Investigation of Modular Structural Concrete Insulated Panels**
Usha Pant
- 2:10 PM **Prepulse inhibition (PPI) in larval zebrafish as a marker for schizophrenia**
Niki O'Neal



Return to [Main Room](#) for Awards Ceremony & Closing

Meeting ID: 842 3136 4573

Passcode: 722669

2:15

Creative Works Showcase - *Joyce Ignites the Universe: A Photographic History*
Iris Gray

Closing Awards Ceremony

Tracy Collum, Associate Dean for Graduate School

Adam Bradford, Dean for Graduate School



Keynote Speaker



Dr. Marianne Walck

Deputy Laboratory Director for Science and Technology and Chief Research Officer, Idaho National Laboratory

Dr. Marianne Walck provides strategic leadership, direction, and integration for research, science and technology at Idaho National Laboratory in her role as deputy lab director for Science and Technology and Chief Research Officer. Prior to joining INL in 2019, she was vice president of Sandia National Laboratories' California laboratory. She has more than 30 years of DOE national laboratory technical leadership experience, including technical program leadership, research leadership, and line, personnel, and site management. As vice president of Sandia's California laboratory, Dr. Walck was responsible for principal programs including nuclear weapons stewardship; homeland security with a focus on defending against weapons of mass destruction; combustion, transportation, and hydrogen energy research; biology; and advanced computational and information systems. Dr. Walck also served as vice president in charge of Sandia's Energy and Climate Program, which encompasses a wide variety of energy technology programs including renewable energy systems and energy infrastructure, climate and engineered systems, fossil energy, nuclear and fuel cycle, and transportation energy systems. Earlier, she held a variety of research and management positions at Sandia. She served on the Sandia Research Leadership Team, created and led the Geoscience Research Foundation; was director of the Geoscience, Climate, and Consequence Effects Center; and was director of the Nuclear Energy and Global Security Technologies Center. Dr. Walck serves on several advisory boards for universities and technical institutes, including the Texas A&M Energy Institute, and is a Distinguished Expert of the California Council on Science and Technology. She holds memberships in the American Geophysical Union, the Seismological Society of America, the Association for Women Geoscientists, the American Nuclear Society, and the American Association for the Advancement of Science. She earned Ph.D. and M.S. degrees in geophysics from the California Institute of Technology and a bachelor's degree in geology/physics from Hope College. She and her husband have two sons. She volunteers as a mentor, and enjoys judging student science fairs and performing as a violinist in community orchestras.



2020 GRS Award Recipients

3MT Winner

Presented to

Looking Beyond Leaves: Nutrient Leaching Potential of Seasonal Litterfall in the Urban Forest

Sophie Hill

Top Oral Presentation in Biological, Physical & Natural Sciences

Presented to

Determining Residence Times and Sources of Groundwater and Carbon in a Semi-Arid Basin

Sara Warix

Top Oral Presentation in Education, Learning & Training

Presented to

Scenario-based E-learning and Feedback Type Effects on Learning and Motivation

Sacha Johnson

Top Oral Presentation in Health, Nutrition & Clinical Sciences

Presented to

Pilot Study of Functional Outcomes from a Modified Intensive Comprehensive Aphasia Program

Thomas Gonzalez

Top Oral Presentation in Health, Nutrition & Clinical Sciences

Presented to

Shame in Supervision: Interpretative Phenomenological Analysis in Counselor Education

William Lane

Top Oral Presentation in Humanities, Behavioral & Social Sciences

Presented to

Testing the State and Trait Accuracy Model III: The Effects of Affect Congruence on the Accuracy of Trait and State Judgments

Sheherezade Krzyzaniak



Top Poster Presentation in Biological, Physical & Natural Sciences

Presented to

Determining Residence Times and Sources of Groundwater and Carbon in a Semi-Arid Basin

Jennifer Souza

Top Poster Presentation in Engineering, Physical & Mathematical Sciences

Presented to

Disaster Management Robotics in collaboration with Idaho National Laboratory (INL)

Uma Shankar Medasetti

Top Poster Presentation in Health, Nutrition & Clinical Sciences

Presented to

Bone Targeting Delivery of Small Angiotensin Peptides: A Focus on AT2 Receptor

Arina Ranjit

Top Poster Presentation in Humanities, Behavioral & Social Sciences

Presented to

Maternal trauma, markers of HPA axis dysregulation, prenatal depression, and breastfeeding

Lillian Bengtson



List of Graduate Student Participants

College of Arts & Letters

Lillian Bengtson (Clinical Psychology - PhD)

Megan Bigham (Clinical Psychology - PhD)

Megan Bird (Clinical Psychology - PhD)

Gabrielle Bratt (Anthropology - MS)

Christopher Brown (Political Science - DA)

Iris Gray (Art - MFA)

Kylie Greenwell (Communication - MA)

Sheyenne Hunzeker (Social Work - MSW)

Subash Pandey (Sociology - MA)

Elizabeth Penix (Clinical Psychology - PhD)

Gabriela Perez (Clinical Psychology - PhD)

Christina Strauch (Clinical Psychology - PhD)¹²

Christina Strauch (Clinical Psychology - PhD)

Wilson Trusty (Clinical Psychology - PhD)

LeAnne Woods (Communication - MA)

College of Business

Kelsey Breer (Business Administration - MBA)

Rana Mazumder (Accountancy - MAcc)

Jeffrey Morgan (Business Administration - MBA)



Chris Nartker (Business Administration - MBA)

Sophia Perry (Business Administration - MBA)

College of Education

Sandro Benitez (Educational Leadership - EdD)

Jon Carlson (School Psychology - MEd)

Emery Clayson (School Psychology - EdS)

Minghui Hou (Educational Leadership - EdD)

Kurt Schiess (Educational Leadership - EdD)

College of Health

Joanne Adams (Nursing Practice - DNP)

Anna Baird (Counseling - Clinical Mental Health - M.Coun)

Laurie Brenchley (Dental Hygiene - MS)

Jonathan Brubaker (Physical Therapy - DPT)

Natalie Christensen (Nutrition - MS)

Brooke Conrad (Physical Therapy - DPT)

Mallory Davis (Nursing Practice - DNP)

Pam Fleckenstein (Nutrition - MS)

Beverly Hines (Counseling - Counselor Education & Counseling - PhD)

Meesha Iqbal (Public Health - MPH)

Rachel Joern (Physical Therapy - DPT)

Savannah Kisling (Physical Therapy - DPT)



Sydney Knight (Nutrition - MS + Internship)

Sinead Martin (Speech-Language Pathology - MS)

Alicia Martin-Cowger (Rehabilitation & Communication Sciences - PhD)

Elise Morrow (Physical Therapy - DPT)

Thomas Murphy (Nursing Practice - DNP)

Sowmya Natarajan (Public Health - MPH)

Andrea Nef (Nursing Practice - DNP)

Ruth Tretter (Nursing - PhD)

Samantha Will (Audiology - AuD)

Biyu Yang (Nutrition - MS + Internship)

Carrie Yuan (Physician Assistant Studies - MPAS)

College of Pharmacy

Farjana Afrin (Pharmaceutical Science - PhD)

Nirajan Bhattarai (Pharmaceutical Science - PhD)

Kaniz Fatema (Pharmaceutical Science - PhD)

Yuying Huang (Pharmaceutical Science - PhD)

Sana Khajhepour (Pharmaceutical Science - PhD)

Matthew Kirkham (Pharmaceutical Science - PhD)

Jamison Lee (Pharmaceutical Science - PhD)

Sarah Luelling (Pharmaceutical Science - PhD)

Sameena Mateen (Pharmaceutical Science - PhD)

Niki O'Neal (Pharmaceutical Science - PhD)

Shaikh Emdadur Rahman (Pharmaceutical Science - PhD)



Arina Ranjit (Pharmaceutical Science - MS)

Sabina Yeasmin (Pharmaceutical Science - PhD)

Jiemin Yuan (Pharmaceutical Science - PhD)

College of Science and Engineering

Devi Adhikari (Applied Physics - PhD)

Travis Bejines (Applied Physics - PhD)

Tyler Breech (Biology - PhD)

Taher Deemyad (Engineering & Applied Science - PhD)

Michael Ferraro (Geology - MS)

Thane Kindred (Geology - MS)

Benjamin Kline (Biology - MS)

Alexander Lopez (Biology - MS)

Pedro Mena (Computer Science - MS)

Tyler Paladino (GeoSciences - PhD)

Usha Pant (Civil Engineering - MS)

Brenlee Shipps (Biology - MS)

Troy Tetreault (Biology - MS)

Shanon Wilmot-Brailsford (Geographic Information Science -MS)



Abstracts

Joanne Adams

Faculty Mentor: Susan Tavernier

Subject: Health, Nutrition & Clinical Sciences

Category: Poster Session

Training Module for Community Health Workers on COVID-19 During the Pandemic

When the COVID-19 virus first reached Idaho, a knowledge gap existed, due to the newness of the virus and the continually evolving knowledge being disseminated. There was a need to fill knowledge gaps and educate community members on how to avoid catching and how to prevent the spread of COVID-19.

Community Health Workers (CHWs) are known improve health outcomes in both rural and urban community settings, and to improve outcomes for a diverse array of health issues. There is a potential role for CHWs in dealing with epidemic/pandemics. Their role includes increasing access to health services, teaching health concepts in culturally appropriate ways, and acting as community-level educators and mobilizers.

Objective: To provide an online educational module about COVID-19, early on in the pandemic for Idaho's community health workers, and evaluate its effectiveness. The module gave participating community health workers continued access to current information on COVID-19 in layman's terms. It was offered in both English and in Spanish. It was also shared with the State of Washington's Department of Health.

Devi Adhikari

Faculty Mentor: Dustin McNulty

Subject: Engineering, Physical & Mathematical Sciences

Category: Presentation Session

Neutron Skin Thickness Measurement in 208Pb using Electroweak Interaction Probe

Atomic nuclei are made of protons and neutrons. Lighter nuclei up to nuclear charge number $Z = 20$ (calcium) contain symmetric nuclear matter (i.e. neutron number \approx proton number). Among the four fundamental forces: gravity, electromagnetism, strong nuclear, and weak nuclear, the last two are less commonly known. In the broad picture, the nuclear structure is shaped by a balance between the electromagnetic repulsive force between positively charged protons, and the attractive strong nuclear force between the protons and neutrons; the weak force plays an important role in maintaining nuclear stability. For the heavier elements, as nuclei get larger, they require more numbers of neutrons than protons in order to balance the increased electromagnetic repulsion between the larger number of protons. A ^{208}Pb nucleus has 44 more neutrons than protons. While the central core of the nucleus is composed of symmetric nuclear matter, the extra neutrons are pushed out to the surface of the nucleus, forming a pure outer neutron skin layer. In contrast to the proton distribution inside a nucleus, which has been accurately measured with electron scattering, the measurements of neutron distributions have suffered from a lack of systematic precision. PREX-2, which ran in hall A of Jefferson lab from summer to fall of 2019, used the parity-violating nature of the weak interaction and measured the neutron distribution in ^{208}Pb nuclei with unprecedented precision. Subtracting the previously measured proton distribution (R_p) from the neutron distribution (R_n), PREX-2 reported the neutron skin thickness in ^{208}Pb nuclei, $R_n - R_p = 0.278 \pm 0.078$ fm. To make such a precision measurement, the



experiment demonstrated stringent control over the systematic uncertainties. This talk will highlight how the neutron skin is formed in complex nuclei and the PREX-2 approach of this measurement.

Farjana Afrin, Sameena Mateen, Srinath Pashikanti

Faculty Mentor: Srinath Pashikanti

Subject: Health, Nutrition & Clinical Sciences

Category: Presentation Session

Developing probes targeting Sphingolipid Metabolizing Enzyme by Synthesis of SphK I / II inhibitors

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 transmembrane 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 the academia and the pharma industries to target SphK1. Studies developing SphK2 inhibitors are still in progress.

Farjana Afrin, Srinath Pashikanti, James Lai, Sameena Mateen

Faculty Mentor: Srinath Pashikanti

Subject: Health, Nutrition & Clinical Sciences

Category: Poster Session

An approach towards Ceramide Sphingolipid quantification by Extraction of microsomal fraction from prostate cancer cells.

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. Ceramide quantification would be an important tool to detect the effect of the small molecules which would inhibit ceramide metabolizing enzymes such as Sphingomyelin Synthase (SMS). SMS is a transferase enzyme that converts Cer to SM. Our hypothesis involves the extraction of microsomal fraction from prostate cancer cells & utilizing a fluorescent SMS substrate C6-NBD-ceramide towards the quantification of cellular ceramide. Quantification of these fluorescent labels will provide insight into SMS kinetics.

Anna Baird

Faculty Mentor: Leslie Stewart

Subject: Humanities, Behavioral & Social Sciences

Category: Poster Session

Race-Based Trauma

Race-Based Trauma (RBT) is a multifaceted issue and is often underdressed in counseling. This research suggests ways that counselors can broach the subject with clients of color, as well as a call to action for more research on the subject of RBT.



Travis Bejines, David Reisman, Rick Spielman

Faculty Mentor: Rick Spielman

Subject: Engineering, Physical & Mathematical Sciences

Category: Presentation Session

Cinco: Progress on a Compact 5-MA Pulsar for High Energy Density Physics

We have been developing the Cinco high energy density physics (HEDP) driver, a compact pulsed power generator comprised of multiple pulse power “bricks”. When fully configured with 50 bricks, Cinco will be capable of attaining ramp pressures of 1 Mbar and flier plate velocities of 8 km/s. Each individual brick is tested in a test fixture with a matched resistance load. We have currently conducted over 200 shots on the single-brick fixture. These shots have allowed us to fully validate our single-brick circuit model. As an intermediate step to proving the efficacy of our full configuration design, we have built a 4-brick strip-line. In these configurations we utilized a matched resistance load. We will be presenting test data from the 4-brick Cinco device.

Lillian Bengtson, Nicki Aubuchon-Endsley

Faculty Mentor: Nicki Aubuchon-Endsley

Subject: Health, Nutrition & Clinical Sciences

Category: Poster Session

Prenatal predictors of breastfeeding difficulty: Exploring connections between maternal trauma, cortisol, and depression

Exposure to traumatic life events is associated with negative effects for women in the perinatal period, including increased prenatal depressive symptomatology and dysregulation of the body’s hypothalamic-pituitary-adrenal (HPA) axis and the stress hormone cortisol. Research suggests that trauma and its related consequences also are closely tied to women’s ability to meet recommendations for breastfeeding, a crucial component for both maternal and infant health. Dysregulated cortisol production may mediate the relationship between trauma and breastfeeding outcomes, as cortisol is associated with both the biological mechanisms of breastfeeding as well as stress responses that may influence breastfeeding behavior. Furthermore, the experience of depressive symptoms in addition to dysregulated cortisol production can present a further barrier to successful breastfeeding.

Sandro Benitez

Faculty Mentor: Mark Neill

Subject: Education, Learning & Training

Category: Presentation Session

Closing the Gap? How Grit Impacts Hispanic Students' Retention

The rapid growth of Hispanics in the United States cannot be “ignored” (Cerna, Pérez, Sáenz, 2009, p. 131). Demographic studies estimate that this minority group will soon constitute one-fourth of the entire U.S. population (Llagas & Snyder, 2003). Although institutions are setting aside resources and integrating intervention strategies to help the Hispanic population succeed in U.S. colleges, students that fit this category are still underrepresented and underserved at a collegiate level (Schmidt, 2003). The study focused on an Intermountain West institution that provides a remedial college course to help first-year students transition to college and increase student retention. One of the many principles emphasized in this course to strengthen



retention is grit (Duckworth, 2016). This study took two academic semesters. The purpose of this study was to identify the relationship between grit and retention for first-year Hispanic students taking a transitional college course at a predominantly white institution. This causal-comparative quantitative research was outlined to determine if there was (1) a difference in pre-test grit scores between first-year Hispanic students and first-year White students participating in a College Success course; (2) a difference in grit post-test scores between first-year Hispanic students and first-year White students participating in a College Success course; (3) a difference in grit gain scores between first-year Hispanic students and first-year White students after participating in a College Success course; and (4) a difference in the distribution of retained/non-retained students, in the subsequent semester, between first-year Hispanic students and first-year White students who reported higher grit scores at the culmination of a College Success course. The analyses for the first three questions were determined not statistically significant, while the analysis for the distribution of retained/non-retained students was significant. Further research should be designed to gather further data supporting first-year Hispanic student retention, presumably applying a mixed-methods research approach.

Nirajan Bhattarai

Faculty Mentor: Marvin K. Schulte

Subject: Health, Nutrition & Clinical Sciences

Category: Poster Session

Structure Activity Studies of $\alpha 9$ containing/ $\alpha 9\alpha 10$ Nicotinic Acetylcholine Receptors(nAChR)

Alpha9/Alpha10 containing receptors have been implicated in multiple neurological disorders including pain (traumatic, inflammatory, and neuronal injury); hearing impairment involving the medial olivocochlear system (MOCS), and triple-negative breast cancer metastasis. Alpha9/Alpha10 nicotinic acetylcholine receptors display atypical pharmacology compared to other subtypes of nicotinic acetylcholine receptors. The classical nicotinic agonists, nicotine, and epibatidine have antagonist properties on these receptors. In addition, muscarinic agonists including atropine, pilocarpine, muscarine, have been shown to inhibit receptor function. Despite the potential benefit of targeting these receptors, the lack of selective ligands, coupled with the paucity of structural information underlying the atypical pharmacology of this receptor, has hampered research in this area.

The research presented in this proposal will address the overarching aim of understanding the structural basis of the atypical pharmacology of alpha9 containing receptors with the goal of developing agonists, antagonists, and allosteric modulators selective for the receptor. The presentation will discuss therapeutic applications of alpha9 containing receptors, challenges to drug design, and propose three aims for the research. 1) Identification of key amino-acids involved in ligand interaction and development of a molecular model of the ligand-binding sites. 2) Identification of potential variable stoichiometries of the receptor and the involvement of chaperone proteins in receptor expression, specifically the inner-ear chaperone protein TMEM. 3) Design and screening of potential ligands to serve as lead molecules for the development of potent and selective agonists, antagonists, and/or positive allosteric modulators.



Megan Bigham, Robert Rieske

Faculty Mentor: 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

Research examining the prevalence of autism spectrum disorder and diverse gender identities has increased in the past two decades and continues to grow exponentially. While researchers are unsure what underlies this cooccurrence, there is some evidence that this 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 both autism and those who do not prescribe to typical gender norms, decreasing quality of life. However, protective factors such as parental acceptance of these identities may be protective against minority stress. The current study will address the literature gap regarding autistic individuals with gender-expansive identities by assessing the relationship between perceived parental acceptance of gender identity and quality of life. The study's design and aims are also informed by the knowledge and experiences of its gender-diverse, autistic community consultants to better serve the needs of the community.

Megan Bird, Samuel Peer, Rochelle Hanson

Faculty Mentor: Samuel Peer

Subject: Humanities, Behavioral & Social Sciences

Category: Poster Session

Changes in Therapist-Reported Competence with Trauma-Focused Cognitive-Behavioral Therapy During a Community-Based Learning Collaborative

For evidence-based treatments like Trauma-Focused Cognitive Behavioral Therapy (TF-CBT) to be effective, therapists must competently implement and tailor prescribed practice elements when needed. Yet, treatment competence in community settings typically remains low, especially with TF-CBT-specific practice elements involving trauma exposures. One potential remedy for competence deficits may be evidence-based implementation models such as the Community-Based Learning Collaborative (CBLC), given its inclusion of fidelity-promoting implementation strategies (e.g., learning sessions, consultation, action periods, metrics).

Shanon Wilmot-Brailsford

Faculty Mentor: Shannon Kobs-Nawotniak

Subject: Biological & Natural Sciences

Category: Presentation Session

Table Butte a Monogenetic Volcanic Anomaly on the Eastern Snake River Plain.

The eastern Snake River Plain (ESRP), a large monogenetic basaltic field and the type location for plains-style volcanism, is valuable not just to understanding the geologic history and hazards of Idaho (e.g., Gallant, 2018) but to studying planetary volcanism by terrestrial analog (e.g., Greeley, 1982; Hughes et al., 2018; Neish, et al., 2017; Tolometti et al., 2020). Table Butte is morphologically distinct from most of the volcanoes across the ESRP, with a steep-sided central platform, tephra deposits with lake sediment blocks, and ~25 small craters clustered on the lava surface (Gallant et al., 2018). These features suggest that Table Butte may have been at least partially formed by phreatomagmatic eruptions and that, consequently, many of the craters previously

mapped as vents from aerial imagery (Wetmore et al., 2009) actually represent rootless steam explosion pits. This creates a problem with existing ESRP maps and datasets: rootless vents and volcanic vents are fundamentally different features and should not be conflated (Wohletz, 1986); doing so introduces errors in interpretations of the ESRP. Therefore, I will use field techniques, GIS, and remote sensing to investigate Table Butte and revise the map of that area for inclusion in a new, comprehensive ESRP map currently in development through the Idaho National Lab. In particular, I will establish the volcanic history of Table Butte and the roles of North Lake and Mud Lake in its formation (Gianniny, 2002). By understanding the geologic history of Table Butte and correcting the map of the area, the overall geologic map of the ESRP will be more accurate and reliable; this will be particularly important for analyzing spatial patterns of vents in order to evaluate future volcanic hazards and investigating structural controls on plains-style volcanism on Earth and other planetary bodies.

Gabrielle Bratt

Faculty Mentor: Charles A. Speer

Subject: Humanities, Behavioral & Social Sciences

Category: Presentation Session

Transitions in Tool Technology Relating to Social Changes Among Prehistoric Pacific Northwest Coastal Groups

This thesis investigates the transition in stone tool morphology preceding and during the Marpole Phase (ca. 2500-1500 BP) along the central coast of the Pacific Northwest (PNW), and it attempts to demonstrate how this transition correlates with cultural factors like increased sedentism and social inequality. The sites selected for this research are the Great Marpole Midden (DhRs-1), the Scowlitz Village (DhRI-16), the Pender Canal sites (DeRt-1 and DeRt-2), and the Olcott site (4455N14).

Tyler Breech, Shawn Narum, Janet Loxterman, Ernest Keeley

Faculty Mentor: Shawn Narum

Subject: Biological & Natural Sciences

Category: Poster Session

Genetic Analysis of Native Redband Trout Legacy Samples in Idaho

Redband Trout (*Oncorhynchus mykiss*) are native to many drainages in western Idaho, inhabiting diverse ecotypes including desert and montane streams. Native Redband Trout populations in Idaho have been shown to be phenotypically, and in some cases genetically, differentiated. However, because of the properties of aquatic connections, geographic proximity may not predict relationships and connectedness of aquatic taxa. Using samples collected by multiple organizations over a 20-year period, single nucleotide polymorphism (SNP) data was generated for twelve populations of native Redband Trout and one hatchery strain of Rainbow Trout. Using this SNP data, we aimed to quantify population structure, isolation by distance, diversity, and effective population size of native Redband Trout across Idaho to investigate intraspecific variation and connectivity among populations.

Laurie Brenchley, JoAnn Gurenlian, Leciél Bono

Faculty Mentor: JoAnn Gurenlian

Subject: Health, Nutrition & Clinical Sciences

Category: Poster & Presentation Sessions

Periodontitis Susceptibility in Patients with WHIM syndrome

Studies in patients with single gene mutations reveal the role of specific genes and pathways in human health and disease. In this sense, studies in patients with genetic defects leading to periodontitis become important toward the understanding of genetic factors linked to periodontitis susceptibility. WHIM syndrome (Warts, Hypogammaglobulinemia, Infections, and Myelokathexis syndrome) is an autosomal dominant syndrome caused by gain of function (GOF) mutations in the chemokine receptor CXCR4. While severe periodontitis in early life has been reported in multiple cases of WHIM syndrome, a comprehensive characterization of periodontal clinical status has not been performed in a large WHIM cohort to date. Furthermore, mechanisms underlying periodontitis susceptibility in WHIM syndrome are not fully delineated.

Purpose: The purpose of this study was to characterize the extent of periodontal pathogenesis in patients with WHIM Syndrome immune dysfunction compared to age-gender matched healthy controls through clinical parameters.

Christopher Brown

Faculty Mentor: Donna Lybecker

Subject: Humanities, Behavioral & Social Sciences

Category: Presentation Session

Boomers, Doomers, and Zoomers: Examining American's Existential Moment

This dissertation will argue that America's current crisis of political culture and identity is emblematic of themes found in existential theory. It seeks to bring existentialism into the context of political theory using three crises facing the United States: rapidly changing technology and labor opportunities, the increase in deaths of despair, and the accelerating effect of the COVID-19 pandemic. Current empirical research on these topics are synthesized and analyzed through the existential and poststructural theories of Heidegger, Kierkegaard, Sartre, Camus, and Foucault to construct a political conception of existentialism. With these new, more fundamental perspectives of how individuals experience the political world, future discussions addressing polarization, inequality, and mental health can be less disciplinary and more nuanced regarding the lived experiences of Americans.

Jon Carlson, Emery Clayson, Minghui Hou, Joel Bocanegra

Faculty Mentor: Joel Bocanegra

Subject: Education, Learning & Training

Category: Poster Session

Upending Shortages in School Psychology

School psychology is experiencing a critical shortage of practitioners and trainers. This decades-long personnel crisis can negatively impact our service provision and potentially, the future viability of the field, in its current form. Unfortunately, personnel projections suggest that this crisis will worsen in the coming years due to the graying of the field. As we begin to explore best recruitment practices in school psychology, it is paramount that we lay the groundwork of knowledge regarding what are common recruitment practices within



school psychology in order to better understand if what is labeled as best practices truly differentiate from current common practices. Moving forward, this will better help us understand the changes that need to be made to help address the shortage crisis. The current study is a national survey of 151 school psychology programs within the US and its territories. Participants were selected from a comprehensive list of school psychology programs and their faculty members. The survey was created through a thorough literature review and by consulting content experts. The study was then distributed through Qualtrics. Results suggest that faculty perceive location to be the most important factor for an applicant when deciding on the program of choice and cost to be the least important factor for determining their school of choice. There was a general consensus that establishing a strong pipeline is vital for improving recruitment practices. Of the methods endorsed, making direct contact and responding to emails were the most endorsed. Formal recruitment plans and using academic advisors were the least endorsed. It is worth noting that programs within smaller communities were also found to be significantly more involved in recruitment pipeline efforts. Implications for the field will be discussed.

Natalie Christensen, Pam Fleckenstein

Faculty Mentor: Cynthia Blanton

Subject: Health, Nutrition & Clinical Sciences

Category: Poster & Presentation Sessions

Diet Quality Impact on Mental Health of Female Collegiate Athletes during COVID-19

The NCAA has identified mental health as a priority issue that significantly affects collegiate athletes. Interventions that improve diet quality have been shown to improve mental health in several populations. Female collegiate athletes have elevated risk of experiencing anxiety and depression symptoms. Moreover, the COVID-19 pandemic has impacted the lives of collegiate athletes in unique ways, which may increase their risk for dietary and mental health difficulties. This study explores the connection between the quality of diet and mental health symptoms in female student athletes within the context of the COVID-19 pandemic. Based on extant literature, we hypothesize that a higher-quality diet is associated with lower rates of anxiety, stress and depression in these female student athletes.

Mallory Davis,

Faculty Mentor: Melody Weaver

Subject: Health, Nutrition & Clinical Sciences

Category: Poster Session

Polypharmacy and Potentially Inappropriate Medication Prevalence in Rural Older Adults in Caribou County, Idaho

Background: People are living longer with multiple comorbidities, contributing to a rise in polypharmacy. Polypharmacy increases risk for potentially inappropriate medications, adverse drug events, and medication-related problems. Little is known regarding polypharmacy and potentially inappropriate medications in older adults being seen in primary care settings in rural America.

Purpose: This study describes prescribing practices, polypharmacy prevalence, and potentially inappropriate medications among a county with six primary care clinicians in the United States Intermountain West.



Taher Deemyad

Faculty Mentor: Alba Perez-Gracia & Anish Sebastian

Subject: Engineering, Physical & Mathematical Sciences

Category: Presentation Session

Autonomous Ground Vehicle For Virus Detection And Removal

The population of the world dramatically rises by 2050 and this causes a 100 to 110 percent increase in demand for agricultural products as the major source of food by this time. On the other hand, disease and viruses affect on quality and quantity of these products while the traditional methods for protecting the fields and these products are not very efficient!

Among the agricultural products, the potato has a special place in the human diet and potato virus Y which is named PVY is one of the common diseases between various types of potatoes and has a huge negative effect on the economy of the state of Idaho each year. All these together led our group in the mechanical engineering department in a collaboration with the department of geoscience in ISU to find a novel method by taking advantage of new technologies to detect the infected plants more accurately and remove them faster from the field. In this work, various parts of an autonomous ground vehicle (AGV) for agricultural purposes is designed. These parts include: design an optimized prototype chassis, navigation system and obstacle avoidance, image processing and robot vision system, and novel roving mechanism for this vehicle.

This method is not limited to the potato plant and we can apply the same method for other plants as well. In conclusion, outcome of this study can dramatically affect both quality and quantity of agriculture products, which in turn enhances national and universal food supply.

Kaniz Fatema, Shawn Plyler, Adriene Pavek, Yanlian Wang, Kevin Jones, Chris Nartker, Zack Larson, Jared Barrott

Faculty Mentor: Jared J. Barrott

Subject: Biological & Natural Sciences

Category: Poster & Presentation Sessions

Enhancement of Genomic Instability by Epigenetic Dysregulation in Osteosarcoma

Predicting chemosensitivity in osteosarcoma 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 osteosarcomas.

Michael Ferraro, Sarah Godsey, Paul Link

Faculty Mentor: Sarah Godsey

Subject: Biological & Natural Sciences

Category: Presentation Session

Saturated hydraulic conductivity as a driver of flow permanence in Gibson Jack Creek, Bannock County, Idaho

Over half of the global stream network is intermittent, defined as experiencing persistent flow between at least some storms, but drying between others. Even though intermittent streams have varying degrees of surface water permanence, they still provide many of the same ecological and human services as their perennial counterparts. These services include providing critical habitat, enhancing aquifer recharge, and maintaining downstream water quality. Stream intermittency is frequently attributed to a combination of climatic, geological and land use controls. However, characterizing the relative importance of these controls

across different spatial and temporal scales remains difficult. Although recent advances have been made to characterize contributing area, topographic controls, and source water inputs, assessing network-scale subsurface properties has remained difficult. This is because practical constraints such as time, expense, and accessibility of sample locations frequently limit the quantity and quality of subsurface hydraulic property datasets. Subsequently, most models of stream intermittency have been unable to account for variations in streambed saturated hydraulic conductivity (Ksat). Modelers have thus either assumed a uniform Ksat or used statistical models to infer Ksat from sediment characteristics. Here we accurately characterize the in situ network-scale spatial structure of streambed Ksat in a headwater intermittent stream network in the Gibson Jack watershed near Pocatello, Idaho. This effort advances stream intermittency models by assessing how well geologic and geomorphological proxies predict spatially distributed Ksat and their relationships to seasonal streamflow intermittency.

Iris Gray

Faculty Mentor: Jonathan Fardy

Category: Creative Works

Joyce Ignites the Universe: A Photographic History

As a photographer outside of a photography program, my MFA study is an exploration of the medium at a distance. The work has led me to the "photographic": a set of qualities by which photography operates in ways unseen in photographs themselves. My post-media approach opens up the use of a variety of materials while never really requiring me to leave my home medium. Working in this way, I make visible photography's peculiarities and blindnesses, in particular its claim as a transparent window to the real and to documentation. The culmination of my study is the construction of an installation artwork that includes photographs, but foregrounds what is absent in them: contextuality, physicality, and dormant memory. The installation, titled "Joyce Ignites the Universe", acts as a quasi-historical interpretive exhibit presenting a counter-history of photography "written" by an unseen allegorical mother figure. The same figure allows me to situate myself as an artist-- in history-- and inheritor of a photographic practice.

Kylie Greenwell

Faculty Mentor: Neelam Sharma

Subject: Humanities, Behavioral & Social Sciences

Category: Presentation Session

Understanding the Effect of Collegiate Student Athlete's Perceived Stigma and Mental Health Stressors have on Help-Seeking Tendencies toward Professional and Personal Sources

While competing student-athletes face a variety of mental health issues including social anxiety (Wolanin, et. al, 2016), depressive disorders (Hammond et. al, 2013), feeding/eating disorders (Sundgot-Borgen & Torstveilt, 2004), and substance-related/addictive disorders (Martens et. al, 2006). At times, student-athletes experiencing these problems need but do not get help due to the stigma associated with seeking help. This study covers a large portion of the Western side of the United States. The purpose of this study is to look at Big Sky Conference student-athletes' self-stigma, public stigma, and mental health both in and out-of-season.



Beverly Hines

Faculty Mentor: Elizabeth Horn

Subject: Education, Learning & Training

Category: Presentation Session

Supervisee Perception of Supervisor Requests for Feedback and the Impact on the Supervisory Alliance

The strength of the relationship (alliance) between a supervisor and supervisee has been called the “heart and soul” of effective clinical supervision (Watkins, 2014). To develop and maintain a strong supervisory relationship, the ACES Taskforce on Best Practices in Clinical Supervision (2011) includes the directive that supervisors should “elicit and...[be] open to candid and ongoing feedback from the supervisee” (p. 8). However, no studies in the supervision literature were found to have investigated the effectiveness of this practice. Furthermore, few studies have investigated how often supervisors are following this directive. While Blue (2017) found that supervisors self-reported a high frequency of requesting feedback from their supervisees about the supervisory relationship, Calvert et al.'s (2020) study casts doubt on the accuracy of these self-reports. Additionally, there is evidence that the focus of feedback requested by supervisors of supervisees may have variable impacts on the strength of the supervisory relationship. A review of a recent dissertation study that investigated the frequency and focus of the feedback requested of supervisees by supervisors, and the effect that these had on the strength of the supervisory relationship, will be presented.

Yuying Huang, Shaikh Emdadur Rahman, Matthew L. Caylor, Jiemin Yuan, Danny Xu

Faculty Mentor: Yuying Huang

Subject: Health, Nutrition & Clinical Sciences

Category: Poster Session

Ototoxicity Associated With COVID-19 Drugs

With the pandemic Coronavirus disease of 2019 (COVID-19) caused by the Severe Acute Respiratory Syndrome coronavirus 2 (SARS-CoV-2), a large number of therapeutics are being repurposed and fast-tracked through clinical trials to fight the new coronavirus. Currently, the investigational therapeutics including the anti-parasite medication Chloroquine/Hydroxychloroquine; the antiviral drug Remdesivir; a combination of Human Immunodeficiency Viruses (HIV) drugs Lopinavir and Ritonavir are giving hope to eradicate the Covid-19. However, the aggressive drug development timeline may have consequences of drug-induced side effects, including ototoxicity, are potentially overlooked.

Previous study showed that both hydroxychloroquine and chloroquine exposure would cause hair cell loss in zebrafish and mouse cochlear model. Clinical case reports also described ototoxic effects associated with chloroquine and hydroxychloroquine. This study aims to identify the Covid-19 drugs that are related to ototoxicity by retrospective clinical mining approach and LINCS data search, and then validate the in silico assessment results using the zebrafish lateral line hair cell assays.

Sheyenne Hunzeker

Faculty Mentor: Fredi Geisler

Subject: Humanities, Behavioral & Social Sciences

Category: Poster Session

Unite Idaho to Protect Against Child Sexual Abuse.

Incredibly under-reported and under discussed child sexual abuse (CSA) is a world health problem affecting children in every class, race, and geographical area (CDC, 2020, Singh, Parsekar, & Nair, 2014). Nationwide statistics show as many as 10 percent of youth under the age of 18 are victims of CSA (Darkness to Light, 2015). In Idaho last year 775 incidents of CSA were reported to local authorities, an increase of 17% over 2019 (Child Sexual Abuse Statistics, 2021). Research indicates that only 34% of CSA are actually reported (London, Bruck, Ceci, Shuman, 2005). Many survivors delay reporting or never report out of fear, guilt, shame, or stigma (Darkness to Light, 2015, London, Bruck, Ceci, Shuman, 2005, McElvaney, 2015). Governor Brad Little addressed his concerns to the legislators and citizens of Idaho in a letter introducing the 32nd annual Child Sexual Abuse Statistics, calling for all citizens to fight CSA in Idaho. The adoption of Erin's Law or similar legislation has been enacted in 37 states to help fight CSA (Erin's Law, 2020). Erin's Law mandates the education of all school personnel, parents, and students (K-12) of the dangers of CSA, empowering children to utilize skills to protect themselves, and encouraging all to speak up, report, and acknowledge this devastating and costly societal problem (Darkness to light, 2015). If Idaho adopted Erin's Law families and church leaders could be empowered to educate all of Idaho about this sometimes uncomfortable, even taboo, topic. "Erin's Law" offers an opportunity to unite citizens of Idaho, to educate many more adults on the actual facts of CSA. This poster presents the preliminary results of the impact of Erin's Law in other states to lower the actual incidents of CSA. Opportunities for promotion and advocacy will be presented in the battle against CSA. "The only thing necessary for the triumph of evil is for good men to do nothing."-Edmund Burke.

Rachel Joern, Brooke Conrad, Jonathan Brubaker, Savannah Kisling, Jill Harris, Evan Papa

Faculty Mentor: Evan Papa

Subject: Health, Nutrition & Clinical Sciences

Category: Poster Session

Effects of Non-contact Boxing on Fall Risk in Patients with Parkinson's Disease

It is estimated that Parkinson's disease (PD) affects nearly 1 million people over the age of 45 in the US alone¹. PD causes high rates of morbidity and mortality, and patients are at a high risk of falling. Previous studies demonstrated positive outcomes in balance, mobility, and quality of life of people living with PD after participation in a community-based non-contact boxing training program, however the effect of this program on risk of falling was not assessed.^{2, 3} In this preliminary study, we evaluate fall risk after participation in a non-contact boxing program.



Sana Khajhepour, Susan Tavernier, Craig Scoville, Ali A. Habashi

Faculty Mentor: Ali Aghazadeh-Habashi

Subject: Health, Nutrition & Clinical Sciences

Category: Poster Session

Identifying and Validating Plasma Circulating Renin-Angiotensin System Components as Reliable Biomarkers of Rheumatoid Arthritis

The renin-angiotensin system (RAS) is an enzymatic cascade controlling cardiovascular, and renal functions responsible for maintaining blood pressure and balancing body fluids and electrolytes. It has two opposing arms called classical arm and protective arm. Chronic imbalances of these two arms lead to different pathophysiological conditions. Moreover, several studies link plasma or urinary ACE2 levels in patients with various disease. These patients exhibited reduced ACE2 activity and considerable high levels of circulating anti-ACE2 autoantibody. We hypothesized that an assessment of circulating ACE2, anti-ACE2, Ang II, and Ang1-7 could provide a useful diagnostic biomarkers panel for patients with different inflammatory diseases.

Thane Kindred

Faculty Mentor: Sarah Godsey

Subject: Biological & Natural Sciences

Category: Presentation Session

Stream Intermittency Across Space and Time

Streams in which water is absent for at least part of the year, or intermittent streams, make up almost half of streams worldwide (Datry, 2017; Datry, 2014; Doman et al., 2021, Jenson et al., 2019). In the last four years, models that predict intermittency have improved significantly (Fritz et al., 2013; Jaeger et al. 2019), however, these new models require extensive monitoring campaigns. (Botter and Durighetto, 2020; Jaeger et al., 2019; Jensen et al., 2019; Ward et al., 2018) Model development could be done with increased efficiency if we had a better understanding of the spatiotemporal scales at which intermittency varies.

Matthew Kirkham, Sarah Luelling, Kaniz Fatema, Jared Barrott

Faculty Mentor: Jared Barrott

Subject: Biological & Natural Sciences

Category: Poster Session

Improving In Vitro Analysis and Drug Panel Screening of Patient-Derived Cancer Organoids Through 3D Bioprinting

Traditional 2D cell culture allows for preliminary exploration of in vitro effects for drug screening and treatments, but does not portray a truly accurate representation of cell-cell interactions. Cell signaling is limited to only direct neighbors in an x-y plane. Growth of true, 3D organoids, or clusters of cells representative of tumor conditions, is the next step in accurate, in vitro predictions of cancer treatment and drug screening.



Benjamin Kline, Ernest Keeley, Janet Loxterman

Faculty Mentor: Ernest Keeley

Subject: Biological & Natural Sciences

Category: Presentation Session

DNA-methylation profiles of Redband Trout from desert and montane environments

Epigenetic variation is a potential pathway for rapid response to environmental change and has been shown to influence local adaptation at the population level through population-environment interactions. The most well-understood mechanism of epigenetic variation is DNA-methylation, a form of gene regulation that acts in response to environmental stress. Previous studies have shown ecotypic variation in DNA-methylation, but few have attempted to quantify epigenetic variation in natural populations.

Sydney Knight, Irene Van Woerden, Cynthia Blanton

Faculty Mentor: Cynthia Blanton

Subject: Health, Nutrition & Clinical Sciences

Category: Presentation Session

Nutrition and Health Behaviors Influenced by COVID-19 using the Information Motivation Behavior (IMB) Health Model

The COVID-19 pandemic has produced an overwhelming amount of information on ways to protect against infection. Although research findings describe health behaviors displayed during COVID-19, no data are available on the impact of information, motivation, and behavioral skills on behaviors. The current study examines whether food- and COVID-19-related information and motivation are related to behaviors 1) directly and/or 2) indirectly through behavioral skills.

Jamison Lee, Nikole O'Neal, Anju Sanchala, Gustavo Gonzalez-Cuevas

Faculty Mentor: Gustavo Gonzalez-Cuevas

Subject: Biological & Natural Sciences

Category: Poster Session

Developing a new of post-traumatic stress disorder in zebrafish

Post-traumatic stress disorder (PTSD), affecting approximately 8% of the world's population, continues to be one of the most debilitating human neuropsychiatric disorders. Despite research advances over the past decades, current animal models are insufficient and efficacy of psychopharmacological treatment of PTSD remains poor. Thus, there is a critical need for further preclinical investigation into the mechanisms and pathogenesis of PTSD with the aim of identifying novel therapeutic targets. This project aims at developing a new model of PTSD in zebrafish that can ultimately unveil underlying mechanisms of PTSD with the potential of accelerating personalized pharmacotherapeutics by high-throughput drug screening.



Alexander Lopez, Jack Rose

Faculty Mentor: Jack Rose

Subject: Biological & Natural Sciences

Category: Poster Session

Prolactin Induces Glycogen Catabolism and Glucose Secretion in Mink (*Neovison vison*) Uterine Epithelial Cells: A Possible Contribution to Reproductive Success

Mink pre-embryonic survival, development, and implantation are dependent upon uterine epithelial secretions containing metabolic substrates such as glucose, amino acids, and lipids. Glucose is derived in part from epithelial glycogen reserves that are catabolized just prior to implantation. We've shown that estrogen, dominant during estrus, increases uterine glycogen synthesis whereas progesterone, elevated during peri-implantation, promotes glycogen mobilization. Although this would seem to explain why total uterine glycogen reserves peak during estrus, and are lowest prior to implantation, progesterone concentrations have increased only slightly at this time. In contrast, prolactin which is essential for implantation in mink increases many days before progesterone. We hypothesized that the initial mobilization of uterine glycogen reserves in mink is induced not by progesterone but by prolactin.

Sarah Luelling, Matthew Kirkham, Austin Kalivas, Jared Barrott

Faculty Mentor: Jared Barrott

Subject: Health, Nutrition & Clinical Sciences

Category: Poster Session

Oncostatin M Receptor as a Therapeutic Target of Radioimmune Therapy in Metastatic Synovial Sarcoma

Synovial sarcoma is a soft tissue malignancy of the muscle that primarily affects adolescents. Due to its low incidence, little advancement has been made in the treatment of this cancer. With an overall survival rate of roughly 40%, the need for new treatments for synovial sarcoma is evident. Oncostatin M Receptor (OSMR) is a type I cytokine receptor and is overexpressed in metastatic synovial sarcoma. OSMR does not have high expression in normal tissues, making it an ideal target for cancer therapy. We hypothesize that by using an anti-OSMR monoclonal antibody conjugated to a radioactive Copper-67 isotope, synovial sarcoma can be targeted at both primary and metastatic locations through systemic therapy. Cu-67 is a beta radiation emitting isotope that is tissue damaging and able to induce cell death in cancer cells. By conjugating the chelating molecule p-SCN-Bn-NOTA to an anti-OSMR antibody, Cu-67 was able to be captured to the antibody. A thermal shift study showed that this Antibody-Drug Conjugate (ADC) remained stable with minimal decrease in melting temperature. Capture efficiency of Cu-67 was measured after TLC separation and found to bind in a concentration dependent manner, requiring an excess of Cu-67 for efficient binding. This data suggests that targeting OSMR through radioimmunotherapy (RIT) is a viable treatment and indicates further testing in animal models.

Sinead Martin

Faculty Mentor: Kristina Blaiser

Subject: Health, Nutrition & Clinical Sciences

Category: Poster Session

Factors influencing parent-child interactions

Secure parent-infant attachment is an important indicator of future success for children. Previous research suggests that maternal-infant attachment is more secure with increased duration of breastfeeding. Paternal-



infant attachment, however, has not been researched in relation to infant feeding practices. To continue our understanding of how infant feeding practices, impact the father's role in parent-infant attachment, the purpose of this study is to determine how father-child interaction and overall relationship is impacted by duration and different feeding practices.

Alicia Martin-Cowger

Faculty Mentor: John Seikel

Subject: Health, Nutrition & Clinical Sciences

Category: Presentation Session

Prevalence of Oral Mechanism Examinations in Clinical Assessment by Speech-Language Pathologists

In the field of speech-language pathology, the oral mechanism examination (also known as the oral peripheral examination) of oral and facial structures and function is a critical standard of practice during clinical assessment; however, the profession lacks data on the effectiveness of graduate speech-language pathology programs in teaching the examination and whether practicing speech-language pathologists (SLP) enter the field with the foundational knowledge to administer and interpret the examination. This uncertainty regarding the oral mechanism examination has consequences for patient care, particularly when the exam is not used or is not interpreted adequately due to lack of proficiency with the exam. Expected outcomes for the study include increased understanding of the supports and barriers experienced by SLPs during the initial assessment in general and the oral mechanism examination in particular. Outcomes are measured using a survey tool developed from a review of the literature, SLP-focused websites, and the American Speech-Language-Hearing Association's (ASHA) Practice Portal. A variety of response types are used in this survey questionnaire, including demographic questions and questions using a Likert scale (agree/disagree; always/often/sometimes/never), yes/no questions, and two qualitative questions regarding support and barriers. This research has the potential to contribute to the development of graduate school curricula and professional continuing education opportunities for SLPs, as well as implications for improved interprofessional collaboration during patient care and generation of referrals to specialists. In addition, the results of this study may have implications for further research that is needed to ascertain when the oral mechanism examination is indicated, the effectiveness of the oral mechanism examination to assess what it is believed to assess, and whether specific components and tasks of the oral mechanism examination are relevant.

Sameena Mateen

Faculty Mentor: Srinath Pashikanti

Subject: Biological & Natural Sciences

Category: Poster Session

Strategies towards Inhibition of Virulent Bacterial Phospholipases: A Review

Bacterial phospholipases (PLs) are a ubiquitous group of enzymes that catalyze the hydrolysis of cell membrane glycerophospholipids and/or sphingomyelin into fatty acids and other lipophilic substances. Among the different PL types, phospholipase C (PLC) enzymes play prominent roles in virulence and, to date, 13 isoenzymes have been identified. Of these, the *Clostridium perfringens* PLC (also known as alpha toxin) is the most well studied and is the major lethal factor in clostridial gas gangrene (myonecrosis). Catalysis of phospholipases involves hydrolysis of phosphocholine on host cell membranes. Sphingomyelin hydrolysis results in ceramide and phosphocholine products. The byproducts of this catalysis results in secondary



messengers that are involved in cell signaling. Inhibition of extracellular virulent phospholipase activity maintains the cell membrane fluidity and integrity.

Rana Mazumder

Faculty Mentor:

Subject: Business, Economics & Public Administration

Category: Presentation Session

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

Despite the voluminous literature on the link between CEO duality (i.e., Chief Executive Officer, the CEO, also serves as Chairman of the board) and corporate performance, there is scant research on the link between CEO-Chairman family relationship and firm performance, whereby CEO and Chairman of the board are the same person or individually different persons but come from the same family.

Rana Mazumder,

Faculty Mentor:

Subject: Business, Economics & Public Administration

Category: Poster Session

Insight on Fraud Factors and Fraud Players' Motives: A Literature review

Having a downbeat impact on the corporate discipline and market composure, recurrent episodes of accounting frauds invariably demand critical reviews from multifaceted magnitudes. This work endeavors to focus on audit failure through the unique mixture of two different dimensions of accounting frauds which are fraud factor analysis in the light of fraud triangle theory and the catalyzing roles of fraud participants.

Meesha Iqbal, Muhammad Khan

Faculty Mentor:

Subject: Health, Nutrition & Clinical Sciences

Category: Poster Session

Screening & Awareness of Breast Cancer in an Urban Slum of Pakistan: A Pilot Study

Breast cancer is the most common cancer in women across the world with low survival rates in less developed countries. Low survival rates in less developed countries can be explained mainly by the lack of early detection programs and lack of adequate diagnosis and treatment facilities. Pakistan has high incidence of breast cancer. About one third of all cancer deaths in Pakistan are due to breast cancer. Given that Pakistan is a low resource setting, we aimed to assess the feasibility of breast self-examination followed by clinical examination as a population-based screening tool for breast cancer.

Meesha Iqbal, Zafar Fatmi

Faculty Mentor:

Subject: Humanities, Behavioral & Social Sciences

Category: Presentation Session

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



Intimate partner violence (IPV) affects millions of women across the world, and Pakistan is no exception. However, there is wide variance in reported frequencies worldwide and even within the same population. No standardized representative national and subnational estimates were available for IPV in Pakistan.

Pedro Mena

Faculty Mentor: Leslie Kerby

Subject: Engineering, Physical & Mathematical Sciences

Category: Presentation Session

Auto Machine Learning Applications for Nuclear Reactors

The interest in using machine learning models to diagnosis issues with equipment has grown greatly in recent years. In the nuclear industry there are several research efforts exploring the use of machine learning to identify transients. The benefits of these projects include improved safety at nuclear plants, quicker responses to issues occurring with a reactor and cost savings from unplanned shutdown prevention/mitigation. This project focuses on the use of auto machine learning to train models that can correctly diagnosis a transient event occurring with a reactor.

Jeffrey Morgan, Kelsey Breer, Sophia Perry

Faculty Mentor: Alex Bolinger

Subject: Business, Economics & Public Administration

Category: Presentation Session

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

At a time when many faculty have been unexpectedly thrust into teaching online classes, the need to understand the criteria students use to evaluate whether faculty care has never been more important. Although researchers have investigated the factors that influence student perceptions that faculty care in face-to-face courses (e.g., Hawk & Lyon, 2008), little research has systematically investigated the criteria used by students to evaluate faculty care in online courses.

Elise Morrow

Faculty Mentor: Evan Papa

Subject: Health, Nutrition & Clinical Sciences

Category: Presentation Session

An Atypical Presentation of Posterior Canal Cupulolithiasis BPPV

BPPV (benign positional paroxysmal vertigo) is the most common vestibular disorder and cause of vertigo. Canalithiasis and cupulolithiasis are two forms of BPPV that occur when otoconia are dislodged from the utricle and are either freely floating in a semicircular canal or attached to the cupula. Both forms of BPPV can occur in any semicircular canal and cause episodes of vertigo when the head is moved into certain positions. In addition to vertigo, patients with BPPV typically exhibit nystagmus with characteristics specific to the involved canal. In this case study, a patient with an atypical presentation of posterior canal cupulolithiasis was followed by physical therapy in an outpatient vestibular setting.



Thomas Murphy

Faculty Mentor: Susan Tavernier

Subject: Health, Nutrition & Clinical Sciences

Category: Presentation Session

Implementing the SMART Medical Clearance Form to improve emergency psychiatric care: A Quality Improvement Project.

Psychiatric disorders and substance abuse account for up to 12.5% of emergency room visits a year and are a leading cause of lost productivity, second only to cardiovascular disease in the U.S. Mental health patients in the emergency department are significantly more likely to experience an extremely long length of stay (>24 hours) compared to non-mental health patients in an environment that is unsafe, and unable to provide the type of care they need, leading to disparities for a large portion of ED patients. The purpose of this project is to implement the SMART form in a local ED and evaluate provider satisfaction with its use as a tool to communicate a thorough completion of the necessary medical examination and clearance needs for a safe transfer to psychiatric care.

Sowmya Natarajan, Irene Van Woerdenn

Faculty Mentor: Irene Van Woerden

Subject: Health, Nutrition & Clinical Sciences

Category: Poster Session

Are patients at risk for oral cancer being screened for the disease?

Accounting for 3% of all cancers in the USA, oral cancers are typically diagnosed at late stages. Early diagnosis and treatment is imperative for survival and improving quality of life. The major risk factors are tobacco, alcohol use, and HPV infection. Recent studies reveal diabetes as a potential risk factor. Screening subjects belonging to established risk groups demonstrated improved survival rates and reduced mortality. We review the odds of getting an oral cancer exam for smokers, alcohol users and diabetics.

Andrea Nef

Faculty Mentor: Gina Clarkson

Subject: Health, Nutrition & Clinical Sciences

Category: Poster Session

ACL Injury Prevention Program Promotion

BACKGROUND: As adolescent soccer players are pushed to be the best in their sport, an increased strain is seen on their bodies – especially their knees. This population is vulnerable to serious injury to their anterior cruciate ligaments (ACL). Injury prevention programs are designed to help reduce the risk of sustaining ACL injuries; however, these programs are not being utilized frequently as many coaches in the state of Utah reported having not used ACL injury prevention techniques before.

PURPOSE: The purpose of the project was to identify potential barriers and provide education on an ACL injury prevention program to high school girls' soccer coaches in northern Utah.



Niki O'Neal, Anju Sanchala, Jamison Lee, Gustavo Gonzalez-Cuevas

Faculty Mentor: Gustavo Gonzalez-Cuevas

Subject: Health, Nutrition & Clinical Sciences

Category: Poster Session

Prepulse inhibition (PPI) in larval zebrafish as a marker for schizophrenia

Schizophrenia, one of the most incapacitating chronic neuropsychiatric disorders, affects approximately 1% of the world's population. Despite recent medication advances, about two-thirds of schizophrenic patients remain treatment resistant or experience only partial recovery. Thus, there is a critical need for further investigation into reliable and objective behavioral and neural genetic markers with the aim of identifying novel therapeutic targets. One such test is the prepulse inhibition (PPI), a cross-species neurological phenomenon in which a weaker pre-stimulus (prepulse) inhibits the reaction of an organism to a subsequent stronger stimulus (pulse). The zebrafish has rapidly emerged as a successful model for translational research on human neurological disorders, such as schizophrenia, that can potentially uncover candidate genes on highly conserved neurobiological and behavioral substrates displayed during schizophrenia-related PPI deficits.

Tyler Paladino

Faculty Mentor: Shannon Kobs Nawotniak

Subject: Engineering, Physical & Mathematical Sciences

Category: Presentation Session

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

The stability of explosive volcanic eruption plumes has been well studied due to the potential for plumes to generate extreme hazards, such as pyroclastic density currents, ashfalls, and regional to global climate alteration. Previous numerical modeling of volcanic plumes shows distinct connections between plume stability and factors such as mass eruption rate, magma composition, ambient air temperature, and humidity. The effect of wind on plume stability, however, has only been sparsely studied due to the computational expense of full plume simulations.

Subash Pandey

Faculty Mentor: Katrina Running

Subject: Humanities, Behavioral & Social Sciences

Category: Presentation Session

Evaluating the effectiveness of Local Adaptation of Plan of Action (LAPA) in reducing climate change vulnerability using Livelihood Vulnerability Index: A case from Western Nepal

Nepal is the fourth most climate-vulnerable country in the world and has been frequently exposed to climate-related hazards like floods, drought, and landslides. IPCC in 2007 predicts that even with a strong emission reduction and mitigation plan, the impacts of climate change are inevitable. Adaptation, therefore, has emerged as an important strategy to combat the effects of climate change.



Usha Pant

Faculty Mentor: Mustafa Mashal

Subject: Engineering, Physical & Mathematical Sciences

Category: Poster & Presentation Sessions

Analytical and Experimental Investigation of Modular Structural Concrete Insulated Panels

My research is based on the investigation and analysis of the structural concrete insulated panels. The Structural Concrete Insulated Panel or SCIP is an alternative construction to traditional wood framing. A typical MetRock SCIP core constitutes of a welded-wire space frame integrated with a polystyrene insulated core. The two layers of mesh are held together using a galvanized diagonal steel truss system. For my research, the panel was developed in the lab and then tested and then compared analytically. My research is very important to understand and design SCIP panels for the modular construction of structures.

Elizabeth Penix, Wilson Trusty, Joshua Swift

Faculty Mentor: Joshua Swift

Subject: Humanities, Behavioral & Social Sciences

Category: Presentation Session

A Meta-Analytic Evaluation of the Effectiveness of the Collaborative Assessment and Management of Suicidality (CAMS) Intervention Compared to Alternative Treatment Conditions

Many psychotherapies are effective for minimizing suicidal behaviors; however, effect sizes tend to be small and few directly target suicidal ideation. This limitation is an important consideration given that suicidal ideation can be distressing and is a robust predictor of attempting and completing suicide. This study therefore uses meta-analytic techniques to assess the effectiveness of one emerging intervention for targeting suicidal ideation, the Collaborative Assessment and Management of Suicidality (CAMS), compared to other commonly used suicide interventions.

Gabriela Perez, Shannon Lynch

Faculty Mentor: Shannon Lynch

Subject: Humanities, Behavioral & Social Sciences

Category: Poster Session

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

Incarcerated women demonstrate high rates of traumatic experiences, but less is known about their experiences disclosing these events. While negative social reactions are associated with poorer coping, positive social reactions to disclosure are understudied in victims of interpersonal violence. The present study addresses the impact of positive and negative social reactions to disclosure of a traumatic event on coping self-efficacy (CSE) specific to traumatic events.



Shaikh Emdadur Rahman, Yuying Huang, Matthew Caylor, Jiemin Yuan

Faculty Mentor: Danny Xu

Subject: Biological & Natural Sciences

Category: Poster Session

Repurposing of FDA-Approved Drugs to Prevent Cisplatin-Induced Ototoxicity

Cisplatin is first-line platinum-based chemotherapy prescribed to 20% of all cancer patients. However, cisplatin is also one of the most ototoxic drugs. 40-90% of cancer patients who received cisplatin treatment developed permanent hearing loss. Currently, there are no FDA-approved preventive or curative therapies for cisplatin-induced hearing loss.

Arina Ranjit, Ali Habashi

Faculty Mentor: Ali A. Habashi

Subject: Biological & Natural Sciences

Category: Poster Session

Bone Targeted Delivery of Novokinin for Improved Pharmacokinetics and Therapeutic Effects

Novokinin, a synthetic peptide, activates through a less common but beneficial RAS arm, i.e., AT2R, to elicit vasodilatory, anorexigenic, anti-opioid, and anti-inflammatory action. The peptides are generally modified for better pharmacokinetics (PK) and therapeutic results due to their low stability. Here, our novel drug delivery approach targets the bone by a bone-seeking conjugate and uses it as a drug reservoir for extended drug delivery. Nevertheless, the PK of novokinin is still unknown, which hinders its development to be recognized as a potential drug candidate.

Here, we proposed to (i) synthesize, characterize and compare bone-targeting conjugate peptide, (ii) define the PK of novokinin and its conjugate, and (iii) test and compare the in vitro, in vivo biological activity of conjugated peptide in neuroblastoma cell line and adjuvant arthritis rat model.

Kurt Schiess

Faculty Mentor:

Subject: Education, Learning & Training

Category: Poster & Presentation Sessions

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

In the early history of Higher Education in America, very few people had access to attend a university. For some it was too costly, for others, schools were too far from where they lived. Gaining access to higher education was difficult for the common citizen and even more difficult for those who were in the minority. There have been changes in legislation for the past 160 years, trying to provide equal opportunities for all races, genders, and socioeconomic groups to have access to higher education. These laws have allowed broader access to higher education for Americans. The legislation is continually changing with the hope of improving the higher education system. "The first Morrill Act of 1862 provided federal support for state education, particularly in agriculture, education, and military sciences" (Brown, p. 34). The purpose of the Act was to expand higher education for the masses (Sorber, 2014, p. 394). Since the passing of the Morrill Act in 1862, there have been several extensions of this monumental legislation. One major addition to the Act was in 1890, which provided funding for Historically Black Colleges and Universities (HBCU). The 1994 Act provided funding and opportunities for Native Americans to fund colleges that would teach about their histories and be governed by the local tribes. There were several other additions to the original legislation that have allowed for



changes and growth of Higher Education. These Acts have improved access to Higher Education and have allowed more people access to education no matter their race, gender, or socioeconomic group.

Brenlee Shipps

Faculty Mentor: Brandon Peacock

Subject: Biological & Natural Sciences

Category: Presentation Session

The Topography of Diet

Two-hundred-fifty million years ago, a runaway greenhouse effect choked out more than half of all Earth's biological families in the worst mass extinction in life's history: the End-Permian Mass Extinction. Understanding how ecosystems changed before, during, and after this extinction can provide us with vital insights into our own future, but a lack of resolution into the specifics of diet in these ecosystems complicates any predictions. Information on the diets of dicynodonts, a widespread group of rhamphotheca-bearing herbivores from across the Permo-Triassic boundary, is particularly foggy because we lack a standard technique for quantifying the diets of edentulous animals.

Christina Strauch, Samuel Peer, Rochelle Hanson

Faculty Mentor: Samuel Peer

Subject: Humanities, Behavioral & Social Sciences

Category: Poster Session

Impact of a TF-CBT-Focused Learning Collaborative on Supervision Quantity and Quality and Differential Effects on Therapists' General and Protocol-Specific Adherence.

Prior empirical evidence suggests didactic training alone inadequately sustains community integration of evidence-based treatments (EBTs), particularly CBT-based protocols. Hence, most implementation models, such as the Community Based Learning Collaborative (CBLC), include expert consultation to promote EBT implementation with fidelity. In contrast, the role that in-house supervision plays in EBT adoption—particularly during a CBLC—remains relatively unknown, though previous findings suggest supervision's effects may vary based on the content or foci of supervision techniques (e.g., EBT-specific versus general supervision practices). Consequently, this study examined how supervision quantity (i.e., frequency and duration) and quality (i.e., general and EBT-specific techniques and content) changed during a CBLC, and the degree to which these changes affected therapist use of general and EBT-specific practices.

Christina Strauch, Joseph Lemos, Samuel Peer

Faculty Mentor: Samuel Peer

Subject: Humanities, Behavioral & Social Sciences

Category: Presentation Session

Single Case Meta-Analysis of Parent-Child Interaction Therapy (PCIT) for Middle Childhood Disruptive Behavior

Presently, few empirically validated treatments exist for middle childhood (MC) disruptive behavior problems. Growing research supports PCIT's (i.e., a best practice treatment for children ages 2.5–6) efficacy for older youth, but evidence remains limited to single case research. Our study conducted the first meta-analysis of this research, assessing (1) PCIT's overall efficacy during MC and (2) whether PCIT's age-adaptations enhance child clinical outcomes.



Troy Tetreault, Ken Aho

Faculty Mentor: Ken Aho

Subject: Biological & Natural Sciences

Category: Poster Session

Design/implementation of a novel insect enclosure and addressing issues regarding methodology in pollination ecology

Replicability of methodology for pollination ecology studies is crucial for continued research in a changing climate. Specifically, studies inhibiting insect visitation to plants rarely provide detailed instructions for building enclosures, making it exceedingly difficult for scientists to produce their own viable enclosures. We aimed to design, produce, and field test a pollinator enclosure that (1) was an effective insect enclosure, including exclusion of pollinators of particular size ranges, (2) persistent in high winds and other extreme conditions, (3) easy to produce, and (4) cost-effective.

Ruth Tretter

Faculty Mentor: Mary Nies

Subject: Health, Nutrition & Clinical Sciences

Category: Poster Session

Vehicle-dwelling American Nomads and Disparities in Healthcare

Vehicle-dwelling American nomads (VANs) describes a population who live nomadically in cars, vans, or recreational vehicles in the United States. They may be working or retired and include people of all ages. Nomadic populations are those who do not structure their lives around stationary homes, rather their life routines include movement from place to place. Nomads have been classified as vulnerable populations. An increasing number of Americans are adopting the nomadic lifestyle. Organization of healthcare systems can result in disparities in healthcare for nomads.

Samantha Will, Nancy Cheadle, Deborah Vieira, Jennifer Holst

Faculty Mentor: Nancy Cheadle

Subject: Health, Nutrition & Clinical Sciences

Category: Poster & Presentation Sessions

Distortion Product Otoacoustic Emissions Testing in Canines

Assessing hearing loss in dogs is important for multiple purposes, including to accurately identify puppies at high risk for congenital hearing loss, and to assess working dogs. Behavioral testing on canines is difficult. Distortion product otoacoustic emissions (DPOAE) can provide a noninvasive alternative to brainstem auditory evoked response (BAER) testing. Hearing loss in canines can be congenital, or caused by noise exposure, ototoxicity, or as a side effect of aging. There is limited normative information in regards to OAE measurements in canines.



LeAnne Woods, Karen Hartman

Faculty Mentor: Karen L. Hartman

Subject: Business, Economics & Public Administration

Category: Poster Session

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

This paper analyzes Major League Baseball's (MLB) Houston Astros organizational rhetoric and crisis response efforts after the organization was found guilty of cheating during the 2017 season when they won the World Series. Their crisis is viewed here as a "scansis", a newly conceived type of event that combines elements of both crisis and scandal, creating moral outrage among an organization's publics. Our research aims to further the academic study of scansis, investigate how crisis communication impacts stakeholders after a scansis, and identify practical steps crisis communication practitioners can take in scansis situation.



Biyu Yang

Faculty Mentor: Cynthia Blanton

Subject: Health, Nutrition & Clinical Sciences

Category: Poster Session

Cricket powder as a protein source, a sensory evaluation

Entomophagy is the human consumption of insects. It is estimated that two billion people in more than 113 countries practice entomophagy globally. Crickets are nutrient-dense in essential amino acids and minerals. In recent years, Western consumers have begun exploring edible insects as an alternative protein source. Although entomophagy presents an alternative to food sustainability, consumer acceptance remains the primary obstacle. The current literature reports an increased acceptance when insects are incorporated with other ingredients into food and are not visible and when the food contains familiar flavors. It is hypothesized that the overall participant rating of the cricket and egg-white bars will not differ significantly.

Sabina Yeasmin, Marvin Schulte

Faculty Mentor: Marvin Schulte

Subject: Health, Nutrition & Clinical Sciences

Category: Presentation Session

Interactions of viral glycoproteins to the nicotinic acetylcholine receptors in the CNS

Nicotinic acetylcholine receptors (nAChRs) are pentameric ligand-gated ion channels that bind to the excitatory neurotransmitter acetylcholine. nAChRs are involved in neurological disorders and neurodegenerative diseases. We study endogenous Ly6 proteins and neurotropic viruses to find possible viral actions on the CNS nAChRs.

Rabies is 100% fatal which is preventable by vaccination. The post-exposure rabies vaccine needs to be administered within a certain period of being exposed to the virus to prevent the infection spread to the CNS. Once the rabies virus reaches the CNS, it produces different neurological symptoms like partial paralysis, anxiety, confusion, hallucinations, terror, etc. and that may lead to death. There is no proper treatment available to treat those clinical rabies symptoms.

The SARS-CoV-2 virus produces neurological symptoms in Covid19 patients. Several recent studies indicate that SARS-CoV-2 may interact with nicotinic receptors. It is important to determine whether the virus acts on nicotinic receptors to find therapeutic options.

Herpes Simplex Virus (HSV) is also a neurotropic virus that is found to play a role in Alzheimer's condition. Studies showed that cholinergic degeneration occurs in Alzheimer's patients. This study is aimed to determine whether the herpes virus affects nicotinic functions by interacting with CNS nAChRs or not.

Carrie Yuan

Faculty Mentor: Talia Sierra

Subject: Education, Learning & Training

Category: Poster Session

Negative Feedback Perception is Associated with Increased Burnout in PA Students



Feedback is one of the most powerful influences in learning and achievement; however, the perception of how the feedback is given can lead to either positive or negative consequences for the feedback receiver. Previous studies have demonstrated how to best utilize feedback such that it becomes a powerful tool for earning achievements. Burnout is a state of feeling physical, emotional, and mental stress often developed in response to chronically stressful conditions. This study aims to investigate if there is a relationship between how students perceive feedback and if it is correlated with burnout.

