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

IDAHO'S STATEWIDE THREE MINUTE THESIS

Idaho State University

University of Idaho
College of Graduate Studies

BOISE STATE UNIVERSITY

TUESDAY
FEB. 7, 2023 3PM MST

LIVE FROM CWI

THE COMPETITION

This competition was originally developed by the University of Queensland, Australia in 2008, and is now held in over 600 universities across the world. Today, four graduate students from each of the Idaho graduate schools will compete to describe their research in 180 seconds or less.

The top three and the People's Choice winner in today's 3MT event will be given the opportunity to present their work at the Western Regional 3MT event in Portland, OR. in March.
Thank you for participating in and/or celebrating graduate student research in the state of Idaho!

MEET THE EMCEE

Chandra Zenner Ford

Chandra Zenner Ford is the Center Executive Officer for the University of Idaho, Boise and Southwestern Idaho. A two-time U of I alumna holding degrees in adult education and organizational communications and a third generation Idahoan, Ford advocates for Idaho's economic development and educational opportunities.

SPECIAL GUEST

Denise Aberle-Cannata

A welcome from the College of Western Idaho's Provost

MEET THE PRESIDENTS

Kevin Satterlee
Idaho State University

Marlene Tromp
Boise State University

C. Scott Green
University of Idaho

MEET THE GRAD DEANS

Adam Bradford
Idaho State University

Scott Lowe
Boise State University

Jerry McMurtry
University of Idaho

MEET THE JUDGES

Kevin Richert

Kevin Richert is senior reporter with Idaho Education News (idahoednews.org), an independent news site focusing on coverage of K-12 and higher education and state politics. He joined Idaho Education News at its launch in January 2013. He is an award-winning reporter and editor with 37 years' experience in Idaho journalism.
Kevin received his bachelor's degree in journalism from Northwestern University and a master's degree in public administration from Boise State University.
In his spare time, Kevin sings with the Boise Philharmonic Master Chorale. He is also an avid runner who has completed four marathons and more than 50 half marathons. He and his wife Chris live in Boise; they have two adult sons.

Tiam Rastegar

Born in Iran and raised in Germany as an asylum seeking war refugee, Tiam moved to Boise in 2000 and lives there with his wife and two children. Tiam received both a bachelor of International Business and an Executive MBA from Boise State University.

He has wide-ranging experience in Sales, Marketing, Product Development and Program Management, Mergers & Acquisitions with Boise startups since the early 2000's. As the Executive Director of Trailhead, Boise's non-profit hub for entrepreneurship and startup incubation, he also co-chairs Boise Entrepreneur Week. Tiam earned the Idaho Business Review's 2021 CEO of Influence Award, and was ranked 2nd in the Idaho Business Review's Power 25: Startup Edition.

Nic Miller

Nic is the Assistant Vice President of Strategic Projects at College of Western Idaho. He grew up in Homedale, Idaho and is a first-generation college student. Nic has worked in education and economic development in the United States and internationally, helping individuals and businesses reach their potential. Nic holds a B.A. in history from the University of Idaho and lives in Boise with his wife, Katie, and their sons, Joaquin and Beck.

Diane Bevan

Diane Bevan is the CEO of the Idaho Hispanic Foundation and the Executive Director of the Idaho Women's Business Center and Idaho Connect Community Navigator Programs. She has built her career on being a super-connector and loves building ecosystems that create impact. From an early entrepreneur at age 16 to owning an event venue and 2 retail prom/bridal stores, she knows first-hand the barriers women face in business. Her constant drive to empower women and serve the underserved shows in her community and servant leadership. She is a 2019 and 2020 Idaho Business Review top 50 Women of the Year honoree, a 2021 CEO of Influence, and a 2022 top 50 Most Influential Business Leaders in Idaho. Diane recently received national recognition as the winner of the Association of Women's Business Centers most prestigious honor, the 2022 Marsha Bailey Leadership Award.

THE WINNERS ADVANCE TO REGIONALS &

1st place $1000
2nd place $750
3rd place $500
People’s Choice $250

Presented by the University of Idaho College of Graduate Studies with special thanks to President Green and the U of I President and Provosts' Offices

MEET THE 12 PARTICIPANTS

Synovial Sarcoma is a rare form of cancer that occurs in the soft tissue adjacent to bones in adolescents and young adults. This cancer is poorly understood, resulting in poor prognosis, especially when the cancer has spread to other parts of the body.

The current treatment options for this cancer are surgery, radiation, and chemotherapy. My project aims to develop a new radioimmune therapy for the treatment and diagnosis (theranostic) and monitoring of synovial sarcoma non-invasively and with limited side effects.

Jeffrey Okojie
Idaho State University
Pharmaceutical Science - PhD

A theranostic approach for Synovial Sarcoma

Increased fire frequency in the sagebrush steppe has altered plant-soil feedbacks, which complicates restoration efforts. Altered plant-soil feedbacks are the result of increased soil nitrate (NO_3^-) concentrations following fire, which catalyzes growth of invasive species. Further, fire-induced loss of soil carbon and organic matter reduces soil water retention. Finally, fire disrupts soil symbiont-plant interactions that are essential to sagebrush establishment. Biochar, created from pyrolyzed plant biomass, is a soil amendment that may be used to reduce soil NO_3^-, improve soil water retention, and increase colonization with arbuscular mycorrhizal fungi (AMF) an essential soil symbiont for sagebrush. However, its impact on restoration in the sagebrush steppe is uncertain. With this study I ask: (1) How does the application of biochar affect soil biogeochemical properties and sagebrush seedling survival? (2) How does the physicochemical composition of biochar impact soil properties and sagebrush establishment? (3) How does post-fire recovery mediate the impact of biochar on soil properties and sagebrush establishment?

Ashley Leavell
Boise State University
Biology - MS

Biochar impacts on soil and sagebrush seedling establishment in the Sagebrush Steppe

MEET THE PARTICIPANTS

Paul Tietz
University of Idaho
Soil & Water Systems-PhD

Use of hyperspectral remote sensing to detect forest soil phosphorus and wildfire ash metal content

Remote sensing has many applications and benefits in earth science. Visible (350-750 nm) and near-infrared (750-2500 nm) wavelengths can measure environmental data more efficiently than traditional laboratory methods, and in this thesis, a hyperspectral sensing system is used to predict phosphorus (P) in soil and heavy metals in wildfire ash. Ex-situ reflectance was measured with an ASD FieldSpec 4 instrument on 282 soil samples collected from the Lake Tahoe Basin (California, USA). Soil phosphorus was measured using conventional laboratory tests and predicted based on Random Forest and Partial Least Squares Regression. Similarly, models were built to predict heavy metal concentrations in 40 wildfire ash samples collected across the Western US. The data and findings support the development of field-based remote sensing systems that can assess forest watershed P loading potential and the risk of heavy metal contamination in wildfire ash.

Jacob Harris
Idaho State University
Sociology - MA

The QAnon Infection: How families have reacted to members' conspiratorial identities

The conspiracy-theory-based movement known as QAnon is a danger to national security and society's most fundamental socialization unit, the family.

Drawing on 23 semi-structured interviews with family members of QAnon affiliates, I demonstrate how families have attempted to manage, adapt, or abandon their QAnon-infected families. From awkward family gatherings to divorces, kidnappings, and even murders, QAnon affiliates' conspiratorial beliefs and actions are tearing families apart.

MEET THE PARTICIPANTS

COVID-19 led to widespread mask wearing, but surgical masks don't just reduce the spread of diseases, they also reduce access to communication, particularly for d/Deaf and hard of hearing (DHH) people. This research is a mixed methods approach to analyzing how the widespread use of masks has impacted communication for DHH people. In it, I take a closer look at the impact as well as which populations of DHH people experienced a greater impact. This research involves the analysis of a survey of 198 DHH people and interviews with 14 survey participants. Findings in this research suggest that masks impacted communication for nearly all DHH people.

Kym Couch
Boise State University
Public Policy & Administration - PhD

Unheard victims of COVID-19: The impact of mask use on communication for d/Deaf and hard of hearing people

Information is a critical resource for animals, and access to information can shape their ecology and behavior. Visibility, which characterizes accessibility of visual information as a function of habitat structure, can be especially important for prey species attempting to avoid predation. Three-dimensional habitat structure blocks sightlines and consequently alters the potential area from which visual information can be collected. Methods for estimating visibility have not accounted for fine-scale 3D structure, limiting our ability to quantify this crucial resource. Using lidar technology has allowed us to overcome these limitations and test hypotheses about the effects of ecosystem-specific structure on visibility and assess how prey species make use of visibility when selecting for secure habitat. Results of this work are advancing the emerging field of 'viewshed ecology' by improving methods for estimating visibility and applying these new methods to better understand why and how animals select habitat.

Rachel Stein
University of Idaho
Natural Resources - PhD

Seeing is surviving: How habitat structure influences access to visual information and predator avoidance

MEET THE PARTICIPANTS

Ritesh Yadav
Idaho State University
Business Administration - MBA

Foreign aid and gender inequality: Sectoral impact of aid

We studied the impact of foreign aid on gender inequality. We disaggregate aid into seven sectors to determine which types of foreign aid reduce gender inequality in recipient countries. We find that an increase in total aid decreases gender inequality, however, when we differentiate among types of aid, we find that the social and economic sectors decrease gender inequality, humanitarian aid increases gender inequality while the others have an insignificant impact on gender inequality.

Bridget Bittmann
Boise State University
Hydrologic Sciences - MS

How are urbanization and climate affecting irrigation water demand in the Lower Boise River Basin?

Regions across the western US are rapidly urbanizing, causing substantial land use and land cover change in historically agricultural areas. In the Lower Boise River Basin of southwestern Idaho, this change in land use has caused subsequent shifts in irrigation water usage, resulting in water that was historically used to irrigate crops now being spread across lawns and parks. Simultaneously, climate change is producing rapid warming, variable changes in precipitation, prolonged drought, and increased rates of evapotranspiration. Water managers currently do not have the information as to how both land use change and climate variability is impacting the irrigation water demand in the Lower Boise River Basin, which limits their ability to plan for future irrigation seasons as population growth continues. The goal of this study was to analyze surface water irrigation diversions in the Lower Boise River Basin to inform water management on the extent that land use change and climate are impacting annual irrigation deliveries.

MEET THE PARTICIPANTS

Lukas Krumpl
University of Idaho
Movement Science-PhD

Morphological and mechanical properties of the plantar fascia in response to imposed running demands

Morphological and mechanical properties of the plantar fascia (PF), such as thickness and stiffness, have been suggested to play a role in developing plantar fasciitis. The true etiology and progression of plantar fasciitis are unknown. A better understanding of the tissue properties prior to injury is important as there are currently no know preventative strategies.
This dissertation explored the effects of imposed running demands on PF properties. PF thickness and stiffness decrease acutely in response to a single session of high intensity track repeats. Both properties returned to pre-run values after 30 minutes of rest.
Furthermore, PF thickness in a rested state increased due to distance running on three consecutive days. These findings suggest that mechanical overloading and insufficient rest induce conformational PF change and add new information regarding the behavior of the tissue in response to running, improving the outcomes of injury prevention.

Bailey Dann
Idaho State University
Anthropology – MA

Shoshoni language revitalization and reclamation: Developing a Shoshoni language curriculum for the secondary classroom

Shoshoni language revitalization is possible through avenues such as schooling that were historically harmful to Indigenous peoples.

Through the incorporation of Indigenous teaching methodologies such as storytelling, a powerful transformative moment occurs in the classroom where the Shoshoni language becomes an esteemed vehicle for knowledge transmission. My thesis focuses on developing a Shoshoni language curriculum that is grounded in best language revitalization education methods and theory.

Adrian Rodriquez
Boise State University
Master of Public Health

Improving Hispanic family caregiver projects: Identifying how unique barriers and cultural values influence service utilization and caregiver roles

Aging populations in the United States are growing more diverse every year with the largest growth seen within Hispanic populations. Hispanic caregivers to loved ones with Alzheimer's disease and other dementias experience unique barriers in accessing public health services including much needed healthcare. This paper aims to identify how public health programs have successfully implemented public health interventions within Hispanic populations. This literature review utilizes peer-reviewed articles and grey literature on Hispanic caregivers and diverse caregivers to identify unique barriers experienced, such as socioeconomic status, language, cultural competence, immigration status, transportation, insurance coverage, and healthcare cost, that contribute to reduced healthcare access and reduced utilization of formal caregiver services. Successful public health interventions and similar caregiver programs must consider barriers and cultural values unique to Hispanic communities in their development and implementation. This research paper contributes to the documented need for additional research on programs that assist Hispanic caregivers.

Jeremy Van Driessche
University of Idaho
Natural Resoures-PhD
Fish & Wildlife

The influence of tusklessness on foraging behavior of female African elephants (Loxodonta africana)

Anthropogenic disturbance in the form of human harvest can exert tremendous pressure on wildlife populations. By exploiting populations at high levels and targeting specific traits in ways that do not mimic natural predation, human harvest of wild populations can generate rapid evolutionary changes in harvested species. Yet, the behavioral consequences of rapid, human-induced changes in animal morphology or physiology remain poorly understood. For example, although intensive poaching for ivory has led to an increase in tusklessness among some female African elephant (Loxodonta africana) populations, no studies have investigated the impacts of tusklessness on elephant behavior. We studied elephant behavior in Gorongosa National Park, Mozambique, and our findings suggest that tuskless females use foraging habitat differently than their tusked counterparts, which could dramatically alter the structure and function of entire savanna ecosystems. This research directly supports the UN Decade of Ecosystem Restoration, which focuses on overcoming the global biodiversity crisis.

VOTE FOR BEST PRESENTATION

WHO WILL WIN?

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