



Graduate Research Symposium:

Showcasing Scholarly
 & Creative Works

IDAHO STATE UNIVERSITY

2017

MARCH 31, FRIDAY

5:00PM-7:30PM

POSTER &

CREATIVE WORKS

SESSIONS

APRIL 1, SATURDAY

8:30AM-4:00PM

ORAL PRESENTATIONS

discover OPPORTUNITY

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AGENDA

FRIDAY, MARCH 31ST

5PM -7:30PM	Poster Sessions Creative Works	Ballroom
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SATURDAY, APRIL 1ST

8:30 AM	Building Success Across Diverse Context	North Fork
8:30 AM	Natural Science & Environmental Studies	South Fork
10:40 AM	Professional Workshop: Branding Yourself	Middle Fork
11:15 AM	Culture & Arts	North Fork
11:15 AM	Health & Innovations	Middle Fork
11:15 AM	History & Policy	South Fork
12:50 PM	Keynote Speaker Luncheon CHARLES R. MARTINEZ, JR., PH.D. <i>Sociocultural Influences on Health and Education</i> <i>Disparities: Innovations and Lessons Learned</i>	Ballroom
1:45 PM	New Paradigms in Science & Engineering	North Fork
1:45 PM	Business Strategies & Globalization	South Fork
2:30 PM	Complex Social & Behavioral Systems	South Fork
3:55 PM	Professional Workshop: CV Writing 101	Middle Fork
4:30 PM	Awards Ceremony	Ballroom

KEYNOTE SPEAKER

CHARLES R. MARTINEZ, JR., PH.D.

Philip H. Knight Professor and Department Head, Department of Educational Methodology, Policy, and Leadership
Director, Center for Equity Promotion



About Dr. Martinez:

Dr. Charles R. Martinez, Jr. is a clinical psychologist, Philip H. Knight Professor, and department head in the Department of Educational Methodology, Policy, and Leadership at the University of Oregon, where he also serves as the founding director of the Center for Equity Promotion. He served as the University of Oregon Vice President for Institutional Equity and Diversity from 2005 to 2011, where he led institutional efforts to develop and implement the first-ever

equity and inclusion plan for the University. Dr. Martinez also served as a senior scientist at the non-profit Oregon Social Learning Center where he founded and directed the center's Latino Research Team beginning in 1999. He has served as a publicly elected member of the Eugene, District 4J School Board and is currently serving as a Governor appointed member and current chair of the Oregon State Board of Education representing Oregon's 4th congressional district.

His substantive interests center on identifying malleable factors within education and social systems that promote healthy adjustment for families and children, especially those from culturally diverse populations who frequently experience disparities in access and outcomes in these settings. With multiple grants from the National Institutes of Health, Institute of Education Sciences and other funders, Dr. Martinez has led numerous national and international research projects designed to examine risk and protective factors involved in linking cultural factors to education

and behavioral health disparities for Latino children and families, and to develop and test culturally specific interventions for at-risk families in the U.S. and in Latin America. His main areas of substantive and methodological published work focus on cultural issues in prevention science, Latino education and behavioral health disparities, effects of acculturation processes and discrimination on health, culturally specific family-based interventions, and family-school partnership interventions that promote equity, graduation success, and post-secondary education participation among underserved populations. He is a nationally known scholar on organizational equity issues, cross-cultural research, and community engagement. He teaches courses in equity leadership, culturally responsive intervention practices, cultural adaptation of evidence-based practices, equity and achievement, prevention science, and research methods. Dr. Martinez has received numerous national, state, and local awards for his work, including the “Community, Culture, and Prevention Science Award” and the “International Collaborative Prevention Research Award” from the Society for Prevention Research.



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Research Symposium experience!
#ISUGradResearch2017**



2016 AWARDS

ORAL PRESENTATION AWARDS

Adversity & Resilience

Christopher DeCou, Shannon Lynch, Dana DeHart & Joanne Belknap

Evaluating the association between childhood sexual abuse and attempted suicide across the lifespan: Findings from a nationwide study of women in jail

Complex Social & Behavioral Systems

Johanna Thalmann, R. Terry Bowyer, John Kie, Ken Aho & Jericho Whiting

Social organization and sexual segregation in American bison

Culture & Policy

Laura Griffith

George Eliot: Mary Ann Evans's Socially Empowering Pseudonym

Innovation & Health Systems in Technology

M. Colleen Stephenson, JoAnn R. Gurenlian & Denise M. Bowen

Idaho Adults' Perceptions of Oral Cancer Screening

New Paradigms in Science & Engineering

Maxwell Daniels

Design and Implementation of the Modern Control Console for the Idaho State University AGN-201 Nuclear Reactor

Supporting Student Success Across Diverse Context

Jolene Welker

TRiO Program Analysis

INAUGURAL CREATIVE WORKS AWARDS

Sammy Gravis

Public Art and its Benefits to a Community

Cordelia Chong

Virtual "Evolving Idaho" Exhibit

POSTER PRESENTATION AWARDS

Adversity & Resilience

Hayli Worthington & Andrea Vivic

A Look at the Current European Crisis: Refugees in Transit

Complex Social & Behavioral

Systems Maria Pacioretty, Elizeth Cinto Mejia, Jesse Barber, Marie-Anne de Graaff & Keith Reinhardt

Living in the Phantom Gas Field: Physiological Responses of Sagebrush to Human Noise-Induced Changes in Arthropod Herbivory

Culture & Policy

Allison Findlay & Mary Nies
Social Determinants and Health-Related Quality of Rural Elderly Life

Innovations in Health Systems & Technology

Matea Burns, Nancy Cheadle, Jeff Brockett & James Ralphs
Reflexive or Volitional Eye Opening During Sensory Organization Testing

New Paradigms in Science & Engineering

Rebecca Hazard, Olivia Franklin & Haley Mortin

Bioarchaeological analysis of a skeletal assemblage from Garapan Village in Saipan, Northern Mariana Islands

Psychosomatic & Societal Dynamics

Lillian Jones & Mary Nies
A Nursing Intervention to Decrease the Risk of Depression in Rural Community Living Older Adults

Supporting Student Success Across Diverse Context

Diantha Smith
Engaging and Empowering Diverse Learners through Visual and Digital Tools

People's Choice Poster

Rebecca Brown
Biofeedback as a Treatment Modality in Clinical Mental Health Counseling

PROFESSIONAL DEVELOPMENT WORKSHOPS

10:40 AM

MIDDLE FORK ROOM

Branding Yourself

Stuart Summers

Associate Vice President of Marketing & Communications

Ginny Lawrimore

Digital Media Coordinator of Marketing & Communications

This presentation will cover everything from monitoring your digital footprint to perfecting your personal pitch.

4:00 PM

MIDDLE FORK ROOM

CV Writing 101

Matthew Levay, PhD

Assistant Professor of English

*This workshop will introduce participants to the craft of creating an effective curriculum vitae.
If possible, please bring a draft CV.*

POSTER PRESENTATIONS

TEACHING AND LEARNING GAPS

Brumfield, Amy	SLIM: The Grammar Phobic's Guide to Grading Grammar Errors
Earley, LeAna Hardy, Amy	Morphological and Phonological Impairments: Importance of Differential Diagnosis
Borrenpohl, Teresa	How Student Borrowers in Montana Understand Student Loans
Bearce, Hollie	Establishing Professional Learning Centers Within Rural Hospital Clinical Laboratories
Makwana, Bindal	Concussion protocol awareness in athletics

SOCIAL INFLUENCES

McDonald, Jennifer Letzring, Tera	Relations Between Coded and Self-Reported Affect in Ecologically Valid Situations
Riedstra, Jessica Aubuchon-Endsley, Nicki	The Influence of Stress, Anxiety, and Maternal Experiences on Breastfeeding Behaviors
Udy, Braeden	Surging Web Advocacy: How Twitter Gives Voice and Connects First-Generation Low-Income Students to Post-Secondary Access
Craun, Elizabeth Mahoney, Colin Wegemer, Sarah Wong, Maria	The Intergenerational Effects of Alcoholism on Neurocognitive Functioning of Children of Alcoholics versus Healthy Controls
Woods, Tanna Nies, Mary	Understanding Parental Misclassification of Child Weight Status
Morgan, Laura	Validation of the Physical Attractiveness of a Database of Male and Female Images
Cruthirds, Douglas Higgins, Heidi Wong, Maria	Alcohol and marijuana use predicted adolescent suicidal behavior

POLICY AND PRACTICE	
Aktas, Volkan	Climate change and the rhetoric against it
Fertig, Kurt	Justifying Justice: Seeking Foundations for the Rights of Accused Persons
Wood-Roberts, Barbara	Accuracy of Perspective-Taking at Different Levels of Cultural Dominance in a Healthcare Context
Smith, Mackenzie Callen, Jeffery	Abuse at the Beauty Parlor: Public Policy and the Normalization of Domestic Violence
Ashcraft, Richard Babb, Nate	Healthcare: Name Your Own Price?
Heaps, Kiley	Idaho Public Land
NEW PARADIGMS IN SCIENCE AND ENGINEERING	
Robin, Ishtiaque Hoffman, Andrew Chaczko, Malwina Carnahan, Ryan Hou, Dewen Wen, Haiming	Pre-irradiation Characterization of Nanocrystalline and Ultrafine Grained Austenitic Stainless Steel
Afrin, Farjana Pashikanti, Srinath	A Rigid Phthalimide Linker Based Design, Synthesis and Structure-Activity Relationship Studies of Sphingosine Kinase Inhibitors
Deemyad, Taher Perez, Alba	Design of a Five-Fingered Underactuated Hand for Two-Position Tasks
HISTORICAL PERSPECTIVES	
Anz, Eleah	Peace Church Rhetoric: A Comparative Study
Anderson, Jerad Guilinger, James Meese, Graham Crosby, Benjamin Donnelly, Jessica	Visualizing land use and water quality using location-based photography: a river kayak survey of Marsh Creek, Bannock County, Idaho
Peterson, David	Enza! Enza! Read All About It! Analyzing Influenza in the New York Times and the London Times from September to December 1918
Peterson, David	Deconstructing Stonewall

Hunt, Kristine	"Everybody Has a Bungalow Hope": Housing and Occupation in the US West, 1920
HEALTH AND INNOVATIONS	
Linn, Joy	Knowledge Needs in Barriers of Pain Management of Frontier Providers
Colbrunn, Karissa Newland, Paige Stamper, Jennifer Hudock, Dan Saltuklarlou, Tim Bowers, Andrew	Neuro and Psychophysiological Correlates of Fluent and Disfluent Speech
Miner, Mallory	Improving The Chlamydia And Gonorrhea Screening Process Using The Shared Decision Making (SDM) Model
Lee, Yaeun Erin, Rasmussen	The Effect of Pubertal Development on Food Discounting between Obese and Healthy-weight Adults
Robertson, Stephen Kyne-Rucker, Dante Perschon, Bailey Cates, Andra Wright, Amber Rasmussen, Erin	Effects of Exposure to a Cafeteria Diet in Adolescent and Adult Rats on Delay Discounting: Alterations on Dopaminergic Sensitivity
COMPLEX BEHAVIORAL SYSTEMS	
Scott, Lucinda	Differences in Caregiver Coping Style Effect Efficacy of Mindfulness-Based Interventions
Parkin, Susannah Swift, Joshua	The Client Perspective of Psychotherapy
Goode, Jonathan Swift, Joshua	An Empirical Examination of Stigma toward Mental Health Problems and Treatment Use in Veterans
Krzyzaniak, Sheherezade McDonald, Jennifer Stoker, Jessica Letzring, Tera	Psychological Moderators of Personality Judgment Accuracy: The Differences Between Distinctive and Normative Accuracy
Colman, Douglas Letzring, Tera Biesanz, Jeremy	Investigating Perceiver Empathic Tendencies: Seeing and Feeling Your Way to Accurate Personality Judgments

HABITAT OF WILDLIFE AND INSECTS

Behn, Kathrine Baxter, Colden	The Trophic Ecology Of A Desert River Fish Assemblage: Influence Of Season And Hydrologic Variability
Jurkowski, Carl Finney, Bruce	History of Salmon: A story of Situk Lake, Yakutat, Alaska
Paris, James Buckskin, Preston Wadsworth, Zachary Eckersell, Adam	Impact of Lost Floods on Fish and Food Webs In A Regulated River Floodplain
Ortiz, Jade Baxter, Colden	An investigation of spatial complexity in river-floodplains and its effects on insect emergence and terrestrial insectivores

AGRICULTURAL AND ENVIRONMENTAL

MacNeille, Ruth Lohse, Kathleen Sarah, Godsey Emma, McCorkle Susan, Parson	Transformation and Transportation in Intermittent Streams: Carbon and Nutrient Patterns as Streams Dry.
Sharma, Harmandeep Reinhardt, Keith Lohse, Kathleen	Variation in plant water use and environmental drivers of sap flow in sagebrush communities spanning rain- to snow-dominated elevation zones
Condo, Theresa Reinhardt, Keith	What causes lower treeline? Hydraulic strategies of Douglas-fir along an elevation gradient
Meese, Graham	Floods, Fences, and Fine Sediment: Building the historical context for restoration in Marsh Creek, ID
Radke, Anna Godsey, Sarah Lohse, Kathleen Patton, Nicholas	How Does Your Soil Carbon Flow?: Hydrologic Connectivity and Soil Carbon Export in Reynolds Creek Critical Zone Observatory, Owyhee County, Idaho

ADVERSITY AND RESILIENCE

**Garcia, Brittany
Wade, Mario**

Religious LGBT Populations at Risk for
Suicide: Competent Counseling
Practices

**Webster, Alyson
Garcia, Brittany
Wade, Mario**

Religious LGBT Populations at Risk for
Suicide

**Perschon, Bailey
Kennel, Bryn
Weber, Shelby
Vo, Duyen
Konecky, Emily
Lynch, Shannon**

Suppression and Acceptance as
Predictors for Physical Health among
Incarcerated women.

**Hanley, Shirley
Tavernier, Susan
Wanta, Sandi**

Impact of Quality of Life Guided
Interventions for Depressed Veterans

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- Graduate funding opportunities
- Graduate student research
- Upcoming events

CREATIVE WORKS

Dunn, Andrew

Food in the Camps: Wartime incarceration of Japanese Americans

Eslami, Tirazheh

Introducing Persian culture to the West

Mayer, Rachael

Existential Tapestry Making & Intersectionality in Fiber Art

Merkley, Rebecca

Components of "Negotiated Labyrinth"



Graduate Student Association



Join GSA!
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Volkan Aktas (President)
Jessica Sargent (Vice President)
Nana Eduonoo (Secretary)
Diep Nguyen (Treasurer)
Braeden Udy (Outreach Officer)
D'Andre Mathews (Online Marketing Officer)

ORAL PRESENTATIONS

BUILDING SUCCESS ACROSS DIVERSE CONTEXT

8:30 AM

NORTH FORK ROOM

Alhramelah, Ali	The Effects of the Modality Principle when Teaching a Concept of Mathematics to Undergraduate Students
Bearce, Hollie	Establishing Professional Learning Centers Within Rural Hospital Clinical Laboratories
Borrenpohl, Teresa	How Student Borrowers in Montana Understand Student Loans
Brumfield, Amy	SLIM: The Grammar Phobic's Guide to Grading Grammar Errors
Cruthirds, Douglas Stoker, Jessica N. Colman, Douglas E.	Exploring the Publication Network of Graduate Students Across Programs: A Social Network Analysis
Howell, Renee DeMeyer, Melisa Destler, Dustin Rapp, Marisa Taylor, Kerrie	Generating Discussion About Social Issues Utilizing Current Events: Meaning derived by Counselor Educators in Multicultural Courses
O'Brien, Cheryl	Where Citizens Turn When Seeking Information on Energy Pollution Issues

NATURAL SCIENCE AND ENVIRONMENTAL STUDIES

8:30 AM

SOUTH FORK ROOM

Deshpande, Nakul Crosby, Benjamin	The structural fabric and deformation of a mountain logjam: creep, cameras and chopsticks
Guilinger, James Crosby, Benjamin Meese, Graham Anderson, Jerad	Suspended sediment load and geochemical data reveals near-channel sediment sources along an impaired Idaho channel
Huber, David Commendador, Amy Joy, Stephen Lohse, Kathleen Finney, Bruce Aho, Ken Germino, Matt	Response of Soil Carbon Pools to Climate and Landscape Changes for the Northern Great Basin-Sagebrush Steppe Region

MacNeille, Ruth Lohse, Kathleen Godsey, Sarah McCorkle, Emma Parson, Susan	Transformation and Transportation in Intermittent Streams: Carbon and Nutrient Patterns as Streams Dry
Mallonee, Hester Kobs Nawotniak Shannon, McGregor Michael, Delparte Donna, Huges, Scott	Quantitatively mapping lava flow textures at Craters of the Moon,
Sharma, Harmandeep Reinhardt, Keith Lohse, Kathleen	Diel and seasonal carbon fluxes from leaf to ecosystem scales in sagebrush steppe ecosystems
Tohidi, Hamed	Effect of Sand Content on Behavior of Clay
Zorio, Stephanie Werth, Jason Aho, Ken	Microbial connections between atmosphere, vegetation, and soil in alpine ecosystems, Yellowstone National Park, USA
CULTURE AND ARTS	
11:15 AM	NORTH FORK ROOM
Deikna, Yousef	Lucy Hutchinson's Translation of Lucretius's On the Nature of Things: Not Just for Kids
Griffith, Laura	There is No Escape but in Death: Sexual Transgression, Forgiveness, and the Death of the Female in Jane Eyre and Bleak House
Howard, Jeffrey	Objects in Motion
Raden, Rebecca	Thresholds in Tennessee Williams' The Night of the Iguana
Treasure, Emily	Inherited Ghosts of Racial Conflict in Toni Morrison's Beloved and Chief Seattle's Speech on the Land

HEALTHCARE SYSTEMS AND INNOVATIONS

11:15 AM

MIDDLE FORK ROOM

Afzal, Hassan Srinivasan, Sankara Subramanian	Technology-Based Public Policy Interventions to Enhance Access to Health Care Support: A Study in the Context of Rural Bangladesh
Anglesey, Armando	Direct to Consumer Genetics, DIYBio, and the Future
Henrie, Thomas Mesia, Logan Braun, Timothy Moffit, Dani	Factors That Affect Removal Time Of The Riddell Speed Flex Facemask
Miner, Mallory	Improving The Chlamydia And Gonorrhea Screening Process Using The Shared Decision Making (Sdm) Model
Swann, Hillary Kollmeyer, Leah Conway, Steven Mendez-Gallardo, Valerie Hunter, Kira Burgett Nicholas Brumley Michele	Retinoic-Acid Induced Spina Bifida in Rats: Behavior and Morphology,
Whitaker, Jessica	The Role of Central pH and CO ₂ Chemosensitivity on Bioelectric Rhythms for Breathing during Prenatal and Perinatal Development of the Altricial Zebra Finch

HISTORY AND POLICY

11:15 AM

SOUTH FORK ROOM

Kirkham, Jill	Idaho's Political Preference for Property over People
Lucas, Stephanie Stover, Justin Edwards, John Grigg, William	Predicting History: How Algorithms Can Help Historians by Engaging Audiences
Percy, Corinna	Compliance and Critique: Japanese American Internment and the Literary Magazine Trek

Peterson, David	Deconstructing Stonewall
Smith, Kathleen	A Meta-analysis of Nonsystematic
Lawyer, Steven	Responding in Delay and Probability
Swift, Joshua	Discounting

BUSINESS STRATEGIES AND GLOBALIZATION

1:45 PM

SOUTH FORK ROOM

Afzal, Hassan	Supply Chain as a Complex Dynamic
Street, Jeffrey N.	System: Cybernetic versus Chaotic
Afzal, Hassan	Complexity of employing BPMN 2.0 in
Parker, Kevin R.	designing business Process Notations: Merits, Demerits and Future Prospects
Allen, Alden	Sovereign Abkhazia for Sovereign Abkhazians: Analyzing the Abkhaz Irredentist Movement Narrative for Independence in a Post-Soviet World

NEW PARADIGMS IN SCIENCE AND ENGINEERING

1:45 PM

NORTH FORK ROOM

Bayless-Edwards, Landon	A Network Analysis of Residue Interactions in the Domain IV Voltage Sensor of NaV1.4.
James, Groome	
Daniels, Maxwell	Design and Qualification of Safety Channels for the Idaho State University AGN-201 Nuclear Reactor
Deemyad, Taher	Design Of A Five-Fingered
Perez, Alba	Underactuated Hand For Two-Position Tasks
Dhamala, Anupama	Optical Communication Research
Tandukar, Sabin	Archive
Muppaneni, Naga	Augmented Efficiency of CLA Logic
Spandana	Though Multiple CMOS Configurations
Chiu, Steve	
Robin, Ishtiaque	Pre-irradiation Characterization of
Hoffman, Andrew	Nanocrystalline and Ultrafine Grained
Chaczko, Malwina	Austenitic Stainless Steel
Carnahan, Ryan	
Hou, Dewen	
Wen, Haiming	
Sluder, Daniel	Searching for Physics Beyond the Standard Model with Calorimeters
Tandukar, Sabin	Solar PV Power Plant Simulation
Dhamala, Anupama	

COMPLEX SOCIAL AND BEHAVIORAL SYSTEMS

2:30PM

SOUTH FORK ROOM

**Echon, Reinalyn
Turley-Ames, Kandi
Humphreys, Shana
Parker, Charles**Pupil Dilation and Blink Rate as
Measurements of Cognitive Load
During Deception

**Holcomb, Brittney
Lawyer, Steven**Immediate and Delayed Effects of
Laboratory Exposure to Trauma Cues
Among Sexual Assault Survivors and
Controls

**Parker, Charles
Turley-Ames, Kandi**A Test of Moderated Mediation:
Working Memory and Reading
Comprehension

**Smith, Mackenzie
Callen, Jeffery**Abuse at the Beauty Parlor: Public
Policy and the Normalization of
Domestic Violence

Williams, PaulReflected in the Glass Darkly: Dialectic
Identities in The Prestige

ABSTRACTS

COLLEGE OF ARTS AND LETTERS

ANTHROPOLOGY

Heaps, Kiley

Category: Policy & Practice

Degree Level: Masters

Poster # 47

Idaho Public Land

The purpose of my research presentation is to contribute to the overall discourse regarding public land in Idaho. The design is intended to state the facts that contribute to the existence of Idaho public lands which designates over 60% of land as publicly owned. Overall this research is foreshadowing a contribution to the larger discourse regarding public land ownership and whether the proverbial reigns should be in the hands of the federal or state government.

ART

Eslami, Tirazheh

Category: Creative Works

Degree Level: Masters

Display # 4

Introducing Persian Culture to the West

I immigrated to the United States from Iran in 2006. As I spent time away from Iran and the Persian culture, I took the time to study Western Art. I enjoyed this exploration thoroughly. In spite of the fact that I learned a lot from this process, I continued to feel a strong pull from my past. I longed to showcase my Persian roots as part of my artistic expression. My art is a bridge between my past and present. Concurrent with my intention of connecting my past and present is my goal of promoting cross-cultural understanding between ancient and contemporary western culture. I want to illustrate to western narratives of artistic expression the richness and beauty of Persian culture.

Mayer, Rachael

Category: Creative Works

Degree Level: Masters

Display # 1

Existential Tapestry Making & Intersectionality in Fiber Art

Utilizing ethereal and cerebral aesthetics, my work seeks to be emblematic of our collective experiences in how they shape our realities. I use land, death, decay, change, and life to express ideas about community our ever expanding, never-ending, community. I seek to make work that delves deep into our collective understandings surrounding movement, change, and memory. Our memories and movements impact the way we maneuver in the world, the way we see, think and influence change. My work reflects subtle movements that recognize the power and grace of natural phenomena. There is incredible strength in the understated in

something that you need to look at closer, to contemplate further, in order to understand.

Merkley, Rebecca

Category: Creative Works

Degree Level: Masters

Display # 2

Components of "Negotiated Labyrinth"

My in-progress thesis exhibition is a large-scale installation involving figurative sculptural scenes within a constructed labyrinth of paintings on sheet steel. The participant must navigate a claustrophobic path and intrude upon spaces occupied by human/animal hybrid sculptures. The seemingly precarious nature of the work contributes to a sense of discomfort and impending destruction or violence. The intended effect mirrors the anxiety felt by marginalized people who must navigate hostile spaces in their daily lives. For this symposium, I will present several of the paintings that serve as the disjointed walls of the installation.

ENGLISH

Brumfield, Amy

Oral Presentation Category: Building Success Across Diverse Context

Poster Category: Teaching and Learning Gaps

Degree Level: Doctorate

Poster # 17

SLIM: The Grammar Phobic's Guide to Grading Grammar Errors

By revising their writing assessment system, every college instructor can help students to become more grammatically effective writers, even if the instructors don't know (or want to know) almost any grammar terms or can't dedicate any class time to that specific goal. I created a simplified, limited, and illustrative marking system (SLIM) for assessing and explaining grammatical and mechanical writing errors. This marking system is simplified because it only looks for four basic categories of writing mistakes, which an average reader can easily distinguish and describe without formal grammatical terms. It is limited because an instructor only looks for their established quota of errors before they can stop marking. The quota system also limits the amount that writing mechanics can impact a student's grade, which makes it more equitable for struggling students. The marking system is illustrative because it shows the kind and location of the mistakes.

By clarifying the types of mistakes that a student makes, an instructor can ethically grade mechanical writing errors and guide that student to the most effective campus resources. Using SLIM allows an instructor to show that they value strong mechanical writing skills, while preserving nearly all class and evaluation time for content. Equally important, SLIM makes the course writing expectancies clear. Students have motivation to seek help from campus resources before their writing is assessed, and SLIM's diagnostics can help them to narrow the tutor's focus to their most common errors.

Deikna, Yousef**Category:** Culture & Arts**Degree Level:** Doctorate*Lucy Hutchinson's Translation of Lucretius's On the Nature of Things: Not Just for Kids*

In *The Swerve: How the World Became Modern* (2011), literary scholar Stephen Greenblatt argues that Lucretius' *On the Nature of Things* provides another example of cultural circulation and power, the main theme of his famous book of 1980, *Renaissance Self-Fashioning*. Greenblatt affirms that the seventeenth-century circulation of Lucretius' epic, written in the first century BCE, shows us how Renaissance writers were interested in classical works of art, especially those that discuss toleration and scientific ideas. Greenblatt's interest is in how this artistic work, though atheist and sexually liberated, was circulated in the English world of the seventeenth century even though there were strong religious, cultural, and societal sanctions against it. At the time, only an elite group of English people were able to read and understand such a work due to their Latin fluency. However, in the mid-seventeenth century, amid the Renaissance emphasis on spreading knowledge in vernacular English translations that every English individual could understand, Lucy Hutchinson (1620-1681), a devoted Puritan, translated the difficult text of Lucretius into English. Hutchinson claims that she translated the work out of curiosity about this major classical work, and also because she wanted her children to practice their Latin using her translation.

My presentation will highlight how some of the republican ideals of moderate Puritans of that time were in fact congruous with themes from Lucretius's work, especially in the case of Hutchinson, who through her husband Colonel Hutchinson was actively connected to the politics of her time. The translation of Lucretius' arduous text thus cannot be ascribed solely to innocent curiosity. Indeed, a study of Hutchinson's cultural context will enable us to understand better why she translated this classical work.

Howard, Jeffrey**Category:** Culture & Arts**Degree Level:** Doctorate*Objects in Motion*

According to Newton's First Law, the concept of inertia simultaneously describes the idea that an object in motion remains in motion and that an object at rest remains at rest unless an object encounters external forces that can alter its state. This presentation juxtaposes perspectives from physical sciences, religion, literature, and the author's personal experiences to produce a lyric essay (in the tradition of writers such as Dinty Moore, John D'Agata, and Brenda Miller) that applies the idea of inertia as a central metaphor in the exploration of complex human interactions and narratives. It also inquires into the tension and overlap between the dual themes of rest and motion as they manifest themselves in the writer's reminiscences on sports, agrarian life, family, and love.

Percy, Corinna

Category: History & Policy

Degree Level: Doctorate

Compliance and Critique: Japanese American Internment and the Literary Magazine Trek

On February 19, 1942, shortly after Imperial Japan's attack on Pearl Harbor, President Roosevelt signed Executive Order 9066, which called for the forced relocation and incarceration of Japanese Americans. The US government named these internment areas War Relocation Authority Camps (WRA), and all ten of the camps published newspapers. In an effort to create model communities within the camps and allow internees to exercise a version of their First Amendment right to the freedom of the press, the government permitted newspapers to be written, edited, produced, and distributed within the camps by Japanese Americans themselves. However, because it was wartime and internees were considered suspicious, various restrictions were imposed on camp journalism and newspapers were censored, resulting in a press that was not completely free.

Three of the WRA camps also produced literary magazines, and some scholars claim that these magazines, as opposed to newspapers, were able to be more critical of the internment situation because criticism was veiled in art and literature. I argue that because of its hybrid nature of literary/arts pieces and typical informative and domestic articles found in publications outside of the camps, the literary magazine *Trek* (produced at Topaz in Central Utah) was able to be more reproachful of government policies, whereas newspapers were subject to stricter censorship. Writers and artists used *Trek* as a way to try to make the camp feel like home, but also as form of critique against relocation and internment policies.

Treasure, Emily

Category: Culture & Arts

Degree Level: Doctorate

Inherited Ghosts of Racial Conflict in Toni Morrison's Beloved and Chief Seattle's Speech on the Land

In Chief Seattle's speech supposedly given during treaty negotiations with the US government in or around 1854 and reported after the fact by white pioneers, Seattle states, "Every part of this country is sacred to my people....and the very dust under your feet responds more lovingly to our footsteps than to yours, because it is the ashes of our ancestors." Likewise, in Toni Morrison's 1987 novel *Beloved* that retells a true story about an escaped slave woman who tried to kill her children to prevent them from falling into the hands of her previous master in 1856, the main character Sethe warns her surviving daughter Denver never to visit the place she was held a slave even though the Civil War is over. She says, "If you go there and stand in the place where it was, it will happen again; it will be there for you, waiting for you" (44). This presentation explores the way these two artistic and historical pieces characterize the land of America itself as a repository of the memories of racial

conflict and the repercussions of these ideas in a society that often sees itself as post-bias.

Griffith, Laura

Category: Culture & Arts

Degree Level: Masters

There is No Escape but in Death: Sexual Transgression, Forgiveness, and the Death of the Female in *Jane Eyre* and *Bleak House*

Perhaps one of the most poignant scenes in any Charles Dickens novel is the moment in *Bleak House* (1852-3) when Lady Dedlock and Esther Summerson, long-parted mother and daughter, are reunited at last. Lady Dedlock insists on bearing the burden of her own past mistakes (her premarital sexual relationship with Esther's father), saying, "I must travel my dark road alone" (ch. 36). The image of Lady Dedlock alone on a road at night foreshadows her death three hundred pages later (ch. 59). Her declaration thus becomes an ominous premonition that highlights the necessity of her punishment. The inevitability of Lady Dedlock's death, foreshadowed in her conversation with Esther, is tied to her sexual transgression. I argue that the necessity of punishment by death for women who are involved in sexual sin appears not only in *Bleak House* but also, surprisingly, in a more feminist quarter: in Charlotte Brontë's *Jane Eyre* (1847).

The primary sexual sin in *Jane Eyre* is Rochester's attempt to marry Jane while his first wife is still living. The narrative tension created by this transgression is resolved when Bertha dies; Rochester survives and is forgiven. In *Bleak House*, the primary sexual sin is committed by Captain Hawdon and Lady Dedlock. Unlike Rochester, who can be forgiven for his sexual sin and have a happy ending, Lady Dedlock must perish in order to resolve the narrative tension. In these two novels by two very different writers, parallel plot points reveal parallel ideologies. In both *Jane Eyre* and *Bleak House*, the narrative tension created by sexual transgression can only be resolved by the death of the female.

Anz, Eleah

Category: Historical Perspectives

Degree Level: Masters

Poster # 12

Peace Church Rhetoric: A Comparative Study

On the surface of it, the history of America's first two peace churches is quite similar: both had large settlements in Pennsylvania; both were questioned & persecuted for their pacifist views; both have been present in North America from the colonial period to the present; and most obvious of all, both have espoused the plain testimony. This project proposes however that the ways in which these two groups - Anabaptist & Society of Friends - view and speak about their history is today quite different. It notes their origins in Europe, roles in early America and the present-day implications of the rhetorical choices that each has made, especially in regard to their persecution narratives.

Williams, Paul

Category: Complex Social & Behavioral Systems

Degree Level: Masters

Reflected in the Glass Darkly: Dialectic Identities in The Prestige

Partway through *The Prestige*, magician Rupert Angier gestures to a distinct binary which defines the novel: "Yet no miracle which science may produce can compare with the greatest wonders of all...the human mind and the human body" (93). Before long, Angier is divided into two parts, one more corporeal but given over to a very simple nature, nearly an automaton, while the other version is more a specter but more capable of personal agency. At the same time, his rival, Alfred Borden, begins to lament his own fragmented identity, as he is two complete people trying to merge into a single identity.

This paper argues that, Angier's monologue is a vital clue to how the audience might read the novel: by examining character pairs as representative of a mind-body division, and then bringing those foils into a dialectic struggle, defining each by what it is not. Priest's psychological space requires a character develop self-knowledge, which is discovered by externalizing some quantity of the self in another entity, allowing for a visualization of the psychological dialogue. However, in this process, each external representation of the internal self (i.e. each half of Angier) obtains its own distinct, though incomplete, identity, which drives the spectral Angier to attempt to rejoin the two fragments of himself.

Priest uses the flexible reality offered by science fantasy to externalize these psychological conflicts, which enables both the characters and audience to define the characters' identities. Significantly, it is where the doubles fail to resemble one another that their essential identities are revealed. It is natural to see ourselves personified in another individual, but Priest emphasizes that we are still distinct from that individual, and so are morally responsible for our own identities and actions.

Raden, Rebecca

Category: Culture & Arts

Degree Level: Masters

Thresholds in Tennessee Williams' The Night of the Iguana

The theme of thresholds can be traced throughout Tennessee Williams' *The Night of the Iguana* through both character and setting. In my paper, I will address the author's use of thresholds in both the main character and the play's setting. I will begin by introducing the play's plot and characters, along with the initial reception the play received by its contemporary audience. I will include critics who explore the character of protagonist T. Lawrence Shannon. These critics will respond not only to the character as he is portrayed by Richard Burton in John Huston's 1964 film adaptation. After showing what has been written on the character of Shannon, I will transition into my own analysis of both the text and Burton's performance. I will show how the morally deteriorating Shannon arrives at Maxine's hotel emotionally and literally at a threshold. He is already, at the play's start, at the threshold of disbelief and corollary, his sanity. The hotel, located on the beach of Puerto Barrio,

is where Shannon brings the busload of Baptist Female College Teachers on tour. Shannon is the tour guide who is at the threshold of unemployment on account of having sex with an underage member of the tour. He has already been dismissed from his post as a minister on account of a similar offense. When he brings the women to the wrong hotel, the only thing standing in the way of his dismissal becomes the lack of communication via telegram on site to the outside world. I will show how he continues on his downward spiral until the arrival of the character Hannah Jelkes and her father to the hotel. I will analyze their multiple conversations as they are presented with an argument centered on concern rather than shame that Shannon is able to return safely from the threshold of death.

HISTORY

Lucas, Stephanie

Category: Historical Perspectives

Degree Level: Masters

Predicting History: How Algorithms Can Help Historians by Engaging Audiences

Who reads history and geography anymore? was the question posed almost two years ago by Dr. William Cronon to challenge his fellow academics to answer the call for finding better ways of navigating the digital world. In our increasingly digitized society, where students no longer read for fun, the problem of engaging the public and keeping history relevant in the 21st century should be of utmost concern to historians. This task can be accomplished in part by utilizing some of the same methods behind the online commotion that competes for our audience's attention - algorithms.

The objective of the research will be to develop an algorithm, capable of searching through data produced by the public, to determine what historical topics of interest are trending. This accuracy of this information will be then be tested by producing a podcast based on the most significant historical topic discovered by the algorithm. This objective will be achieved by working with the Computer Science Department at Idaho State University. Under the direction of Dr. Edwards, who has reviewed the project and considers the algorithm application theory sound, undergraduate William Grigg has been assigned the task of writing an algorithm. The algorithm and its results may be available for demonstration by the end of March 2017.

The assertion of the thesis is that while historical research is a process requiring skill, instinct, and persistence, the traditional approach to historical investigation might benefit from digital age access to data that will help educate and engage audiences in ways that were not previously possible.

Peterson, David**Category:** Historical Perspectives**Degree Level:** Masters**Poster # 19***Deconstructing Stonewall*

At approximately 2:00 a.m. on the morning of June 28th, 1969, police raided The Stonewall Inn, a bar on Christopher Street in the Greenwich Village neighborhood of lower Manhattan. The ensuing riots were quickly sensationalized and would become a pivotal moment in the modern Lesbian, Gay, Bisexual, Transgender, and Queer (LGBTQ) rights movement. The riots, however, were not out of the ordinary, nor was The Stonewall Inn an exceedingly iconic location. This presentation explores how the Stonewall riots came to be central to the origin story of the LGBTQ community, especially within the context of collective memory. This includes the political organizing of LGBTQ people, empowered by the Civil Rights movement, prior to the riots, as well as the mnemonic power of the riots as a symbol of gay liberation in the 1970s and onward.

The poster approaches the problem of understanding the LGBTQ Pride movement as inherently spatial, and explores the role of the Stonewall riots in the mnemonic ritual of Pride celebrations held each year throughout the world. The poster will display events relating to the LGBT rights movement before and after Stonewall, presented in the form of a map and timeline. This geographic approach will help illustrate how the LGBTQ rights movement has spread throughout the country, especially into small urban and rural areas.

This paper discusses the effect popular media had on informing public perceptions of the riots and the development of the accepted narrative, which was promoted by the White House when President Barrack Obama announced on June 22, 2016 that parts of the neighborhood surrounding the Stonewall Inn and Christopher Park would become a national monument, transferring the history of the now celebrated bar to the care of the National Park Service.

Dunn, Andrew**Category:** Creative Works**Degree Level:** Masters**Display # 3***Food in the Camps: Wartime incarceration of Japanese Americans*

Food history is ripe with forgotten topics. One such understudied area is the World War II incarceration centers for Americans of Japanese descent. Following Japan's bombing of Pearl Harbor, Executive Order 9066 established a military exclusion zone along the west coast. Targeting those of Japanese descent (Nisei), the Order allowed for the forced relocation and internment of over 110,000 people—all of whom were innocent of any crime.

My examination of food in these incarceration camps is one of the first in-depth examinations of incarcerated minorities' food culture. This study shows how an underrepresented group willingly produced for its persecuting nation. A new layer of depth to an already compelling social history is the result.

Using historic maps, primary source accounts, and archeological evidence has allowed the author to begin creation of a usable map of Idaho's Minidoka Relocation Center's food production, storage, and distribution areas. This map will be used by National Park Service staff in educational tours at the site as well as a compliment to historical research. The nonprofit organization tasked with overseeing the site's projects and interpretation—"Friends of Minidoka"—will also utilize this map in their various projects.

Video and other results from an oral history recently collected by the author of a former child of the camp will accompany the map. This material describes WWII rationing in incarceration settings, food eaten and grown in the camp, and impacts of incarceration on family structure created by hindered mealtimes. Nisei laborers aiding local farmers to help save the nation's food supply will also be included. The two elements of Minidoka's historic food locations represented through mapping, in combination with this new oral history, complement each other. Together, these works represent both cultural and material aspects of food history in a unique setting.

Donnelly, Jessica

Category: Historical Perspectives

Degree Level: Masters

Poster # 38

Enza! Enza! Read All About It! Analyzing Influenza in the New York Times and the London Times from September to December 1918

From September to December 1918, the numbers of people dying from influenza overtook the casualty numbers of the Great War. In a global pandemic, flu caused between 50 to 100 million deaths worldwide. The New York Times reported the arrival of influenza in New York in mid-August 1918 after a Norwegian ship arrived with fourteen people ill. The paper assured readers not to worry; catching influenza was more common for people from Europe, who were malnourished and forced to eat "bad bread" during the war. However, that optimistic reporting proved to be laughably incorrect. The New York Times was far from done with reporting case numbers of those stricken with influenza. From September to December 1918, articles in the New York Times mentioning influenza numbered 352, not including advertisements. Across the ocean, Great Britain also faced influenza as the pandemic overtook the world. The London Times reported less influenza in September, but as Britain's epidemic increased and even the prime minister took sick, flu earned daily news briefs by mid-October. Not including advertisements, 404 London Times articles mentioned influenza, overtaking even the coverage of the New York Times. Influenza assaulted readers of these papers, and by extension their societies. Utilizing the online digital archives of both papers via obituaries, advertisements, and articles, this poster will analyze the newspaper coverage from September through December quantitatively. This analysis will provide insight into reporting trends and the relationship between journalism and society at a time of unprecedented disease within a world already overburdened by industrial war.

Hunt, Kristine

Category: Historical Perspectives

Degree Level: Masters

Poster # 35

"Everybody Has a Bungalow Hope": Housing and Occupation in the US West, 1920

From 1900 to 1930 the Craftsman bungalow house type was popular with homeowners over a wide spectrum of income levels across the United States. Scholarly research on bungalows is generally confined to larger metropolitan areas and the influence of prominent architects. My research analyzes the appeal of bungalows to working- and middle-class residents of small towns and suburbs in the Intermountain West, locations in which local builders predominated over trained architects. I compare the spatial and economic distribution of early twentieth-century bungalows in Pocatello, Idaho, and Missoula, Montana, with the well-studied Pasadena, California.

POLITICAL SCIENCE

Kirkham, Jill

Category: History & Policy

Degree Level: Doctorate

Idaho's Political Preference for Property over People

During Idaho's constitutional convention, one of the most surprisingly heated discussions was the issue of eminent domain. At the time of statehood, Idaho adopted arguably the most liberal eminent domain law in the country. The courts approved the use of eminent domain for private companies (mining and lumber) to take private property (farms and homesteaders) for their own economic interests. In 2005, the United States Supreme Court ruled in *Kelo v. City of New London* that eminent domain could be used to promote economic development. In response, at least twenty-six states, including Idaho, passed legislation to limit the power of eminent domain. In what looked to be a 180 degree change since its founding, the 2015 the state legislature went even further and passed SB1044; changing eminent domain laws to be one of the strictest in the country and prohibited the use of eminent domain for greenways. Previous to this, eminent domain had only been used three times in Idaho for greenways, all for the start of the popular Boise greenbelt.

SB1044 has greatly affected the way cities in Idaho will proceed with expanding and building future greenways. The legislature's preemptive measure to a problem that was nonexistent in Idaho demonstrates a political preference for property rights and special interests over the well-being of people, just like the original founders and their favoritism of corporations.

Fertig, Kurt**Category:** Policy & Practice**Degree Level:** Doctorate**Poster # 42***Justifying Justice: Seeking Foundations for the Rights of Accused Persons*

The Universal Declaration of Human Rights codifies certain universal rights for accused persons. Such rights give the appearance of universality, across both time and space, but a justification of that universality is elusive. This study is an attempt to seek a defensible foundation for such rights beyond those offered by science, religion, and philosophy. Since most perceived violations of human rights occur in the treatment of accused persons, it is imperative that we have a universal foundation upon which to justify opposition to such things as torture, inhumane treatment of enemy combatants, or suspension of due process. In the past such a foundation has been tenuously provided by religion, philosophy and the biological sciences of the society in question. I propose that the rights of accused persons are universal and can be found in a host of ancient law codes.

Aktas, Volkan**Category:** Policy & Practice**Degree Level:** Masters**Poster # 15***Climate change and the rhetoric against it*

It has been proven that climate change is a human-caused reality. The scientific debate about climate change has concluded largely because it's been an obvious, observable reality for decades now that humans are causing warming global temperatures' and the host of problems that come with them such as mass extinctions, global temperature increases, huge droughts, loss of stable source of meltwater, increased acidification of oceans, rising sea levels, and shrinking glaciers around the world (BusinessInsider). The consensus has been supported by numerous studies. However, the idea that the statistic is made up, or wrong, is still a common position among climate doubters and a major tool used to foster public uncertainty about climate change (TheWashingtonPost).

O'Brien, Cheryl**Category:** Building Success Across Diverse Context**Degree Level:** Masters*Where Citizens Turn When Seeking Information on Energy Pollution Issues*

An accurate understanding of an issue is essential for the decision making process. The more complex and technical an issue, the more likely citizens will turn to sources with whom they share values. Given multiple choices of information sources, are shared values the only factor, or does perception of risk and existing knowledge on a complex topic matter? Since valid information sources now compete with fake news sources for influence on public knowledge, it is essential to

understand what shapes citizen preferences for seeking information sources on complex issues.

Udy, Braeden

Category: Social Influences

Degree Level: Masters

Poster # 7

Surging Web Advocacy:

How Twitter Gives Voice and Connects First-Generation Low-Income Students to Post-Secondary Access

Underrepresented populations continually face marginalization. Specifically rural communities, low-income first-generation students have little voice on matters both personal and public. Twitter, and socially media in general, is a surging platform that gives voice to all people, underrepresented included, disregarding geography. Social Medias can be used for "web advocacy," connecting target populations to post-secondary access.

Allen, Alden

Category: Business Strategies & Globalization

Degree Level: Masters

Sovereign Abkhazia for Sovereign Abkhazians: Analyzing the Abkhaz Irredentist Movement's Narrative for Independence in a Post-Soviet World

The fall of the Soviet Union produced multiple instances of nation-formation that could be analyzed by political scientists. While there are theories that work to understand the evolution of a nation to nation-state, none examine the underlying narrative of the movements that seek independence, leaving a gap in knowledge of how policy narratives work on the international level.

PSYCHOLOGY

Smith, Kathleen; Lawyer, Steven; Swift, Joshua

Category: History & Policy

Degree Level: Doctorate

A Meta-analysis of Nonsystematic Responding in Delay and Probability Discounting

Delay discounting (DD) and probability discounting (PD) are behavioral measures of choice that index sensitivity to delayed and probabilistic outcomes, which are associated with range of negative health-related outcomes. Patterns of discounting tend to be predictable, where preferences for immediate (vs. delayed) and certain (vs. probabilistic) rewards change relatively predictably and systematically. Specifically, the subjective value of delayed and probabilistic outcomes tend to diminish as a function of their delay (in DD) and probability (in PD). However, some participants yield nonsystematic response patterns (NSR) that cannot be accounted for by theories of choice and could have implications for the validity of discounting-

related experiments. Johnson and Bickel (2008) describe two atheoretical algorithms for the identification of NSR patterns in discounting in a standardized way. However, the typical frequency of and methodological contributions to NSR patterns is not yet established in the extant literature. The purpose of this meta-analytic review was to (1) report the frequency of NSR patterns across studies published since Johnson and Bickel's seminal paper; and (2) identify potential methodological factors associated with nonsystematic responding. A total of 40 articles reporting nonsystematic responders yielded a total of 114 individual discounting experiments for analysis. Our findings suggested that the average NSR rate was 18.2%. High rates of NSR are problematic because they suggest that either (1) theories of choice do not adequately capture important features of human choice behavior; or (2) discounting titration procedures yield discounting patterns inconsistent with participants' true preferences (and theory). Researchers in the future might consider developing a consensus on how to meaningfully address NSR patterns in their data.

Parker, Charles; Turley-Ames, Kandi

Category: Complex Social & Behavioral Systems

Degree Level: Doctorate

A Test of Moderated Mediation: Working Memory and Reading Comprehension

Research (e.g., Daneman & Merikle, 1996) has consistently found correlations between working memory span (WM) and higher order cognitive function (HCF), including reading comprehension. However, reasons for why individual differences in WM span manifest across HCF tasks calls for further investigation. The ability to resist proactive interference and inhibitory control has been implicated as two possible mechanisms that underlie individual differences in WM (e.g., Engle, & Kane, 2000; Friedman and Miyake, 2004). Dunlosky and Kane (2007) argued that the ability to engage in strategic behavior during completion of a span task may affect individual differences in WM span. Additionally, Turley-Ames and Whitfield (2003) found that the relationship between WM and HCF could be strengthened through strategy use. Therefore, in the present study a moderated mediation model of WM and its relationship to HCF. Resistance to proactive interference, inhibitory control, and metacognition were proposed mediators while strategy use during the span task completion was to moderate the mediation.

Echon, Reinalyn; Turley-Ames, Kandi; Humphreys, Shana;

Parker, Charles

Category: Complex Social & Behavioral Systems

Degree Level: Doctorate

Pupil Dilation and Blink Rate as Measurements of Cognitive Load During Deception

Meta-analyses of almost 50 years of deception literature have shown that both laypeople and experts, on average, have a 54% accuracy rate for discriminating

between truths and lies (Bond & DePaulo, 2006). According to meta-analyses of deception detection accuracy, the behavioral cues that both laypeople and experts use to determine whether someone is lying or telling the truth tend to be inaccurate indicators of deception (Bond & DePaulo, 2006; DePaulo et al., 2003). Understanding the cognitive mechanisms driving deceptive behavior may mitigate the effect of individual and situational factors, and provide an avenue to the creation of procedures that accurately discriminate truths from lies.

Cruthirds, Douglas

Oral Presentation Category: Building Success Across Diverse Context

Poster Category: Social Influences

Degree Level: Doctorate

Poster # 13

Exploring the Publication Network of Graduate Students Across Programs: A Social Network Analysis

Publication is an essential part of the graduate school learning process. While evaluation goes into the quantity and quality of publications scholars produce, not much thought is given to the relationships that are formed by co-authorship. Here, we examined the relationships formed by co-authoring by exploring the social network structure of students from two PhD programs here at ISU. Specifically, we looked at the actor-level and group-level scores of the centrality of graduate students publications (actor-level) in the Experimental and Clinical Psychology programs (group-level).

Wood Roberts, Barbara

Category: Policy & Practice

Degree Level: Doctorate

Poster # 34

Accuracy of Perspective-Taking at Different Levels of Cultural Dominance in a Healthcare Context

Perspective-taking was explored as a potential intervention for eliminating cultural disparities in healthcare. It also elucidated a distinction between perspective-taking and empathy since this distinction is contextually important as a means of achieving objectivity on the part of the healthcare provider. The focus of this inquiry was patient-generated solicitation to perspective-take, description-style, and cultural dominance match as the factors used to test perspective-taking accuracy. Overall, the study found that accuracy of perspective-taking was not influenced by cultural dominance match or by target solicitation of the healthcare provider to see the description from their point-of-view. However, the data did show that greater accuracy resulted from information provided in the form of personal disclosure (i.e., the subjective condition) rather than strictly factual information (i.e., the objective condition).

Robertson, Stephen**Category:** Health & Innovations**Degree Level:** Doctorate**Poster # 40***Effects of Exposure to a Cafeteria Diet in Adolescent and Adult Rats on Delay Discounting: Alterations on Dopaminergic Sensitivity*

Childhood obesity predicts obesity in adulthood. Correlational studies suggest that childhood obesity is related to consumption of foods that are high in fat and sugar. Experimental studies on diet-induced obesity (DIO) support these correlational studies and provide evidence for causation, however, it is unclear if there are critical periods during development in which the brain is more vulnerable to the reward-altering effects of high-fat/high-sugar diets.

Perschon, Bailey; Kennel, Bryn; Weber, Shelby, Shannon**Category:** Adversity & Resilience**Degree Level:** Doctorate**Poster # 31***Suppression and Acceptance as Predictors for Physical Health among Incarcerated women.*

Incarcerated women suffer high rates of interpersonal violence (IPV), including sexual and physical abuse (Lynch, Fritch, & Heath, 2012; Messina & Grella, 2006). Current research suggests that difficulty regulating emotions is related to experiences of IPV. Furthermore, experiences of IPV have been found to be related to negative physical health outcomes (e.g., neurochemical, cardiopulmonary, and gastrointestinal symptoms) (Priester, Cole, Lynch, & DeHart, 2016). However, there is limited research regarding how specific aspects of emotion regulation (e.g., suppression and acceptance) relate to physical health, particularly among incarcerated women who have experienced IPV.

Morgan, Laura**Category:** Social Influences**Degree Level:** Doctorate**Poster # 26***Validation of the Physical Attractiveness of a Database of Male and Female Images*

The purpose of this study was to validate a sample of 100 images of men and 100 images of women for their perceived level of physical attractiveness. This set of images was previously rated by a sample of college-aged students at a University in Colorado (N = 211). This new sample will validate the reliability of these ratings as well as provide further support that facial features indicating physical attractiveness are generally universal (Currie & Little, 2009; Little, Jones, & DeBruine, 2011). Additionally, due to the dense population of students identifying as LDS (Latter-day saints), this study will examine how religious preference may impact ratings of the physical attractiveness of this image set.

McDonald, Jennifer; Letzring, Tera

Category: Social Influences

Degree Level: Doctorate

Poster # 39

Relations Between Coded and Self-Reported Affect in Ecologically Valid Situations

Interpersonal perception research has focused on affective states using only one non-verbal communication channel (e.g., facial expressions) at a time. Targets in these studies are typically asked to pose an emotion or respond to emotionally-charged stimuli (Hall, Schmid Mast, & West, 2016). Little is known how judgments of more naturally-occurring affect using both verbal and non-verbal information are related to self-reported affect.

Lee, Yaeun; Erin, Rasmussen

Category: Health & Innovations

Degree Level: Doctorate

Poster # 8

The Effect of Pubertal Development on Food Discounting between Obese and Healthy-weight Adults

With about 17% of children and 36.5% of adults in the U.S. considered obese in 2015 (Ogden, Carroll, Fryar, & Flegal, 2015), the obesity epidemic continues to be a serious problem. Research consistently suggest that pediatric and adolescent obesity predicts metabolic syndrome and obesity in adulthood (Biro & Wien, 2010; Deshmukh-Takar et al., 2006; Guo & Chumela, 1999; Whitaker, Wright, Pepe, Seidel, & Dietz, 1997), along with increased odds of health problems and poor psychosocial functioning (Halfon, Larson, & Slusser, 2013). Delay discounting, a procedure that characterizes an individual's preference for sooner, smaller rewards over delayed, larger rewards, has been linked to various substance abuse problems, such as heavy drinking (Odum & Rainaud, 2003), nicotine dependence (Bickel, Odum, & Madden, 1999), and heroin use (Kirby, Petry, & Bickel, 1999). Those who demonstrate a pattern of choosing the smaller, more immediate reward are described as more impulsive.

Krzyzaniak, Sheherezade; McDonald, Jennifer

Category: Complex Behavioral Systems

Degree Level: Doctorate

Poster # 6

Psychological Moderators of Personality Judgment Accuracy: The Differences Between Distinctive and Normative Accuracy

Judgmental ability is how well an individual is able to accurately assess others. It is important to understand how characteristics of judges are related to higher vs. lower levels of accuracy. The current study focuses on relations with two components of accuracy: distinctive and normative accuracy. Most previous work has only looked at moderators of accuracy using a nomothetic approach, rather than investigating these separate components. It was hypothesized that various aspects of the judge

would moderate accuracy, and that differences would be found between distinctive and normative accuracy.

Colman, Douglas; Letzring, Tera

Category: Complex Behavioral Systems

Degree Level: Doctorate

Poster # 14

Investigating Perceiver Empathic Tendencies: Seeing and Feeling Your Way to Accurate Personality Judgments

Empathy, the practice of taking, and emotionally identifying with, another's point-of-view, is a skill that likely provides a contextualized glimpse of another's personality characteristics. Yet, systematic research on its relation with accurate trait judgment is sparse. This study investigated this relation between self-reported empathic response tendencies (perspective-taking, empathic concern, fantasy, and personal distress; Davis, 1980) and the accuracy with which judgments of others are made.

Holcomb, Brittney; Lawyer, Steven

Category: Complex Social & Behavioral Systems

Degree Level: Doctorate

Immediate and Delayed Effects of Laboratory Exposure to Trauma Cues Among Sexual Assault Survivors and Controls

Laboratory research that examines individual responses to trauma cues among sexual assault survivors is imperative in developing prevention and intervention efforts. However, there are ethical concerns that such research might retraumatize these survivors. No research to date examines whether exposure to trauma cues in a laboratory context increases trauma symptoms in survivors.

Scott, Lucinda

Category: Complex Behavioral Systems

Degree Level: Doctorate

Poster # 43

Differences in Caregiver Coping Style Effect Efficacy of Mindfulness-Based Interventions

Parents and caregivers of people diagnosed with intellectual and developmental disabilities (IDD) and autism spectrum disorder (ASD) face a unique set of stressors (Lee, 2013). Current literature suggests that these individuals report higher levels of perceived stress, parenting stress (Lai, Goh, Oei, & Sung, 2015), anxiety, depression, and anger (Benson & Karlof, 2008), and lower levels of psychological well-being (Lai et al. 2015) and quality of life (Khanna, Madhavan, Smith, Patrick, Tworek, & Becker-Cottrill, 2010) than caregivers of typically developing children (Silva & Shalock, 2011) and non-caregivers (Khanna et al., 2011; Ruiz-Robledillo & Moya-Albiol, 2013). Long-term effects of living with these symptoms can include disrupted cortisol patterns (Dykens & Lambert, 2013), altered sympathetic nervous activity (Ruiz-Robledillo & Moya-Albiol, 2013), and adverse health (Miodrag, Burke, Tanner-Smith, & Hodapp, 2015). While behavior and skills-based parent training

interventions decrease symptomology for parents and caregivers of those with IDD and ASD, interventions focused on changing coping styles have demonstrated significantly greater improvement (Ferraioli & Harris, 2012; Lindo, Kliemann, Combes, & Frank, 2016). Participants of the present study will be given measures to identify personal coping style, levels of perceived stress, depression, anxiety, anger, and quality of life, before, immediately after, and one month following their participation in a mindfulness-based intervention (MBI). The present study will investigate which coping styles show the greatest improvements in symptomology using MBI.

Parkin, Susannah; Swift, Joshua

Category: Complex Behavioral Systems

Degree Level: Doctorate

Poster # 28

The Client Perspective of Psychotherapy

Unfortunately, about 20% of clients drop out of psychotherapy prematurely, about another 25% show no improvements while in treatment, and about 10% actually get worse. Additional research is needed to gain a better understanding of why psychotherapy does not work for everyone. Although a plethora of research has sought to identify predictors of client outcomes, little research has been conducted examining clients' attributions for psychotherapy change, which is the purpose of the current study.

Makwana, Bindal

Category: Teaching and Learning Gaps

Degree Level: Doctorate

Poster # 45

Concussion protocol awareness in athletics

The following study examines athletes, coaches and staff regarding their knowledge of the concussion protocols and guidelines that have been put into place at a rural northwestern university as well as NCAA established guidelines. The study may take into consideration the following: return-to-play, return-to-learn, and overall concussion management, however these will not be the focus of the present study. The present study will investigate how knowledgeable athletes, coaches and staff are about the protocols that are put in action. The study will also survey the outcomes of individuals who have sustained a concussion and if the protocols put into place were effective. This project could collect valuable information for the athletics department and enhance a growing body of research in the sports psychology and neuropsychology fields regarding psychoeducation for concussions.

Goode, Jonathan; Goode, Jonathan; Swift, Joshua

Category: Complex Behavioral Systems

Degree Level: Doctorate

Poster # 18

An Empirical Examination of Stigma toward Mental Health Problems and Treatment Use in Veterans

Many veterans who experience mental health problems do not seek out any form of professional psychological help. The lack of treatment seeking in veterans may be the result of the presence of stigma, or the perception of stigma, toward those who experience mental health problems or toward those who seek out help. Using a factorial design, the proposed study will test for differences in stigma toward a veteran described in a vignette as either experiencing or not experiencing a mental health problem and either seeking or not seeking out treatment for that problem. Additionally, the relationship between perceived public stigma and attitudes toward psychotherapy, and experiences of self-stigma will be examined.

Craun, Elizabeth; Mahoney, Colin; Wegemer, Sarah; Wong, Maria

Category: Social Influences

Degree Level: Doctorate

Poster # 1

The Intergenerational Effects of Alcoholism on Neurocognitive Functioning of Children of Alcoholics versus Healthy Controls

Neuropsychological deficits have been associated with alcoholism. Indeed, longitudinal research suggests that these deficits can be assessed prior to alcohol use onset and may represent an etiological factor. Developmental models of alcoholism recommend studying children of alcoholics (COAs) to better understand these precursor variables, as COAs are 2 to 5 times more likely to develop alcoholism as adults.

Riedstra, Jessica; Aubuchon-Endsley, Nicki

Category: Social Influences

Degree Level: Doctorate

Poster # 21

The Influence of Stress, Anxiety, and Maternal Experiences on Breastfeeding Behaviors

While breastfeeding rates have continued to rise in the U.S., it remains that about half of mothers discontinue breastfeeding by 6 months of age, as well as two-thirds by 12 months. One possible explanation for the variability in breastfeeding behaviors is maternal stress and perinatal anxiety. Numerous cross-cultural studies have demonstrated the link between breastfeeding initiation, frequency, and duration, and maternal stress and anxiety. Research has also identified aspects of maternal mental and physical health that are protected and promoted by breastfeeding. Several biological, psychological, social, and cultural factors influence a mother's decision to breastfeed. Specifically, breastfeeding difficulties and infant crying may influence breastfeeding behaviors.

The present study will further investigate the relationship between maternal stress and anxiety and breastfeeding behaviors, as well as the influence of breastfeeding difficulties and infant crying on breastfeeding behaviors.

Swann, Hillary Michele

Category: Healthcare Systems & Innovations

Degree Level: Doctorate

Retinoic-Acid Induced Spina Bifida in Rats: Behavior and Morphology

Myelomeningocele (MMC) is the most common and severe type of spina bifida in which the spinal cord fails to develop completely during prenatal development. In rats, retinoic acid (RA) exposure during fetal development has been shown to induce morphologic and clinical symptomology in rat fetuses similar to humans with MMC. However, these studies have not examined behavioral effects of fetal RA exposure. The purpose of the current study was to develop a rat model of RA-induced MMC to examine morphological and behavioral effects in postnatal rat pups.

Cruthirds, Douglas; Higgins, Heidi; Wong, Maria

Category: Social Influences

Degree Level: Doctorate

Poster # 13

Alcohol and marijuana use predicted adolescent suicidal behavior

This paper examined the relationships between substance use (i.e., alcohol and marijuana use) and adolescent suicidal behavior. While the relationship between alcohol use and suicidal behavior has been documented in nationally representative samples (Roane & Taylor, 2008; Wong et al., 2012), the relationship between marijuana use and suicidal behavior was not well-understood.

COLLEGE OF BUSINESS

BUSINESS

Afzal, Hassan; Parker, Kevin R.

Category: Business Strategies & Globalization

Degree Level: Masters

Complexity of employing BPMN 2.0 in designing business Process Notations: Merits, Demerits and Future Prospects

The software design process requires sincere attention to user requirements and minute details. Business process models help to understand, model and design the work-flows, interrelations and structured set of activities that take place in the software development process. Business Process Model and Notation (BPMN) version 2.0 has become one of the most recognized standards for designing business processes [1, 2]. There are a quite a few frameworks that currently recognize the BPMN based business processes and translate them into further

business processes. This research article investigates further the BPMN application and usability for designing business processes and interoperability issues with other frameworks. It also highlights the advantages and disadvantages of adopting BPMN standards in designing business processes. Finally, this research will provide an in-depth overview of future prospects of embracing BPMN in designing interrelated sequences of tasks for software development platforms [1,6].

Afzal, Hassan; Srinivasan, Sankara Subramanian

Category: Healthcare Systems & Innovations

Degree Level: Masters

Technology-Based Public Policy Interventions to Enhance Access to Health Care Support: A Study in the Context of Rural Bangladesh

Bangladesh is one of the most populous countries in the world and the current population is 165.06 million [1]. Almost more than half of the total population does not have proper access to proper healthcare support due to the shortage of the appropriate number of healthcare facilities and registered doctors. The latest research analysis and study conducted by WHO states that now there's only 3 doctors and 3 nurses per 1000 people in Bangladesh [2, 3]. Further comprehensive research indicates that there are certain rural and remote locations in Bangladesh where there are no available hospitals and/or registered doctors to provide required health care facilities [2-5]. Thus, against this backdrop, there is an urgent need to understand whether and how the government could utilize IT tools such as mobile apps to facilitate access to health care support.

Afzal, Hassan

Category: Business Strategies & Globalization

Degree Level: Masters *Supply Chain as a Complex Dynamic System: Cybernetic versus Chaotic*

In today's global marketplace, the nature of the competitive environment for manufacturing has changed. Manufacturing strategy has evolved to a central focus of flexibility where reconfiguring the organization's supply chain is a required and regular event. Consequently, managers realize the importance of viewing the supply chain as a system and are spending increasing amounts of time and effort in attempts to predict and control the extended supplier system. The primary purpose of this paper is to examine the complexity of the supply chain from a systems perspective and discuss the managerial realities of control and goal direction. Firstly, to inform management of the realities associated with planning and directing elaborate supply chains of interconnected firms. Secondly, to extend the application of theory to supply chain phenomena by offering that systems theories such as cybernetics and chaos may explain the behavioral aspects of the integrated system. It is put forth that systems theory may be a complimentary explanation to transaction cost economics, a commonly applied theory in explaining the relational aspects of the interconnected firms in the supply chain.

HEALTH INFORMATICS

Ashcraft, Richard; Babb, Nate

Category: Policy & Practice

Degree Level: Masters

Poster # 20

Healthcare: Name Your Own Price?

Since the beginning of time, mankind has struggled with illness in one form or another. During this time, man has also created various ways to fight illness while making a little money in the process. In recent years, the healthcare industry in America has exploded, and in the process consumed a significant amount of money. Despite the vast sums of money being spent on health care and many significant technological advances, the quality of healthcare never seems to improve. Meanwhile, the costs continue to rise. Is there a solution to fix the madness?

Yes, and it starts by giving the patient/consumer the information and power to make their own decisions about their healthcare. By replicating what Priceline has done in the travel industry, healthcare consumers can truly wrest back control of health care costs and increase quality at the same time. Patients should be allowed to "name their own price" for procedures, medical devices and every other aspect of their care. The patient should be allowed to read and write reviews about which doctors are great and those who aren't. The patient should not be hindered by insurance companies in seeking what treatment they believe suits them best. Patients should be free to choose health care on their own terms. People will argue you can't do this. The current system is how it's always been done. People will argue you can't create change in a behemoth industry like healthcare. They are wrong! By challenging the status quo, arming patients with information, and giving them power to make their own healthcare decisions based on their individual needs, the consumer can wield their mighty stick of consumer choice and force change. In doing so, the consumer will ultimately force higher quality healthcare at a more affordable price.

Anglesey, Armando

Category: Healthcare Systems & Innovations

Degree Level: Masters

Direct to Consumer Genetics, DIYBio, and the Future

A short essay on genetics in healthcare from a futurist perspective, organized into three sections. First, it explores current trends in direct-to-consumer genetics and the impacts big data and genetics are having in precision and preventative healthcare. It then explores the burgeoning field of biohacking and DIY genetics, where tinkerers and enthusiasts conduct simple, at home experiments in gene editing and manipulation. Lastly, it likens the history of personal computing and computer science to genetics and postulates how present practices in computer programming might serve as a model for genetic programming in the future.

COLLEGE OF EDUCATION

ORGANIZATIONAL LEARNING AND PERFORMANCE

Alhramelah, Ali

Category: Building Success Across Diverse Context

Degree Level: Doctorate

The Effects of the Modality Principle when Teaching a Concept of Mathematics to Undergraduate Students

The research identified that Working Memory (WM) is very limited in the duration of processing information and the capacity of storing information (Driscoll, 2005).

Therefore, the challenge is learning to design instructional presentations that do not exceed the processing limits of the human mind (Sorden, 2005). Fortunately, the load on the human mind can be reduced by presenting information in ways that distribute the load between the visual and the auditory channels in WM (Mayer, 2005).

Using both the auditory and visual channels of working memory can play an important role in reducing learners' cognitive load (Clark & Mayer, 2011). Efficient use of working memory resources is central to the modality principle, which recommends presenting words on the multimedia presentation as speech rather than on-screen text (Clark & Mayer, 2011). The effect of the modality has been shown to improve learning by reducing cognitive load (Clark & Mayer, 2011). This principle is based on the Cognitive Theory of Multimedia Learning (CTML), which explains how to reduce the cognitive load by using both channels (verbal and visual) in WM to process information (Mayer, 2005).

Many studies have shown that there is a positive effect of the modality principle on learning different materials (Mayer, 2005). However, a review of the literature found just a few studies examining the modality effect on mathematics learning (Ginns, 2005; Reinwein, 2012). Besides the importance of investigating the effect of the modality principle, Mattis (2012) recommends examining the effect of gender across the modality principle on learning mathematics concepts. Therefore, this study will investigate the effectiveness of applying the modality principle across gender on learning mathematics concepts.

SCHOOL PSYCHOLOGY AND EDUCATIONAL LEADERSHIP

Borrenpohl, Teresa

Category: Teaching and Learning Gaps

Degree Level: Advanced Professional

Poster # 5

How Student Borrowers in Montana Understand Student Loans

United States Department of Education (2014c) statistics showed the cost of higher education has risen by an average of 69% at public four-year institutions over the last decade. Even though college costs are increasing and state funding is decreasing, states are implementing policies to encourage more students to go to college (Lu, 2013). As a result, borrowing is increasingly relied upon, raising the

aggregate United States student loan debt balance. While student debt climbs, students do not seem to understand the intricacies of their debt, causing them to default on their loans and causing direct impacts on the individual, the institution, and the federal government (Higher Education Opportunity Act, 2008). Problems with debt are compounded for low-income students who accumulate debt at a greater rate because they do not have the personal or family financial assistance needed to mitigate their need to borrow.

SPORTS SCIENCE & PHYSICAL EDUCATION

Henrie, Thomas; Henrie, Thomas

Category: Healthcare Systems & Innovations

Degree Level: Masters

Factors That Affect Removal Time Of The Riddell Speed Flex Facemask

Sports participation represents the second most common cause of spinal cord injury in those younger than 30 years old. Football is associated with the greatest number of these injuries in the United States with 11,000 new spinal injured athletes each year. The equipment designed to protect football athletes challenges the ability of medical personnel to obtain neutral spine alignment and immobilization during airway and chest access for basic life support. American football helmets have a facemask which creates a barrier to airway access in the emergency management of an injured football athlete. Recent research recommends the facemask, rather than the helmet, be removed to allow airway access. Removing the facemask and not the complete helmet decreases the chance for secondary cervical spine injury and allows airway access.

Traditional facemasks are attached to the helmet using screws, nuts, and loop straps. Due to recent technological advancements, manufactures have produced models with new quick release systems for football facemasks that eliminate the need for such accessories. The technological advances in football helmet design have come about in response to fatalities and head injuries in American football. The new systems could allow safe and quick removal of the face mask. New helmet models now only require the use of a quick release tool to remove the entire facemask. In a catastrophic cervical spine emergency athletic trainers could establish an air way more quickly and with less head motion than previous helmet technology. Therefore the purpose of this study is to examine the relationships among: a) years of certified experience, b) sport coverage, c) level of education and d) prior helmet experience to the speed at which athletic trainers are able to remove the Quick Release Face Guard Attachment System on a Riddell Speedflex helmet.

Colbrunn, Karissa; Colbrunn, KarissaAndrew**Category:** Health & Innovations**Degree Level:** Masters**Poster # 2***Neuro and Psychophysiological Correlates of Fluent and Disfluent Speech*

Stuttering is a speech disorder characterized by involuntarily repeating or prolonging sounds, or blocking when trying to speak. Our study will measure brain activity during a control trial (production) and fluency-enhancing conditions (imitation and pantomime) to demonstrate neural differences of timing and functional measures between people who stutter and fluent speakers. Previous studies have used electroencephalography (EEG) and timing have measured mu rhythm indication of sensorimotor/neural contributions/integration and the contributions to stuttering. The altered mu rhythm with less time occurring before production indicate that foundations of stuttering appear to be in the motor/sensorimotor system. Our study will further this research and study brain differences in fluency-enhancing conditions.

Earley, LeAna**Category:** Teaching and Learning Gaps**Degree Level:** Masters**Poster # 25***Morphological and Phonological Impairments: Importance of Differential Diagnosis*

Morphological impairments can be misdiagnosed as phonological impairments. Determining a differential diagnosis between the two language components is critical in order to determine appropriate intervention goals and implement effective intervention techniques. Speech-language pathologists (SLPs) utilize distinct methods specific to each component during intervention. Clients with a morphological impairment may demonstrate difficulty with morphological markers, semantics, and syntactic structures, resulting in potential barriers to conveying meaningful messages to the listener. Conversely, clients with a phonological impairment have difficulty learning the rules of the speech sound system. Phonological impairments have the potential to affect the client's ability to convey messages to the listener as with a morphological impairment; however, intelligibility is the primary concern. The case presented in this case study will remind the SLP that utilizing multiple assessment methods will facilitate an accurate differential diagnosis and that the data collected can form the basis for an appropriate intervention plan.

Ross, Megan

Category: Health & Innovations

Degree Level: Masters

Poster # 16

The Importance of Completing Oral Peripheral Exams in the Field of Speech-Language Pathology

Speech language pathologists (SLPs) perform oral peripheral examinations as part of their scope of practice. The completion of this exam is part of the initial assessment process and provides important information affecting diagnosis and creation of an appropriate intervention plan. Oral peripheral exams are completed in order to assess the structural and functional integrity of the speech mechanism. Without completion of this examination, abnormalities may be missed and progress in therapy could be hindered or barred altogether. With some clients, especially younger populations, these exams may be more difficult to complete due to inability to condition the client. Because of this, clinicians may resort to more informal observations. However, these informal observations may not be enough to discover abnormalities in the oral mechanism. The case presented will remind the SLP that completing an oral peripheral examination is crucial and will allow SLPs to determine if referral to an ear nose throat specialist (ENT) is necessary prior to initiation of therapy.

COUNSELING

Howell, Renee; DeMeyer, Melisa; Destler, Dustin; Rapp, Marisa

Category: Building Success Across Diverse Context

Degree Level: Doctorate

Generating Discussion About Social Issues Utilizing Current Events: Meaning derived by Counselor Educators in Multicultural Courses

Education literature acknowledges the usefulness incorporating current events into the classroom to introduce social issue concepts at all levels of education (Deveci, 2007; Galczynski, Tsagkarakaki, & Ghosh, 2011; Grise-Owens, Cambron, & Valade, 2010; Rooks, 2014). Addressing higher-level education, Galczynski, Tsagkarkaki, and Ghosh (2011) propose incorporating current events into curricula to encourage critical thinking and questioning to familiarize students with diversity topics. They asserted that through the discussion and dissection of current events, these issues move from theoretical concepts to real world issues that are relevant and relatable (Grise-Owens, Cambron, & Valade, 2010). It also encourages greater awareness of how knowledge is created and disseminated, thus promoting critical analysis of the world students occupy (Grise-Owens, Cambron, & Valade, 2010). Rooks (2014) highlights the importance of intentionality and experience when integrating current events into the college classroom, reporting that it is possible to do more harm than good when introducing sensitive class discussions. Counselor education literature is lacking in discussion about the use of current events when teaching about diversity topics, while calling for effective and innovative teaching methods to introduce the topics of power and privilege, and facilitate multicultural

competence. There is also a dearth of literature about the experience of the educators taking on the task of facilitating difficult conversations while utilizing relevant, real world examples. The researchers of this study intend to examine experiences of counselor educators who incorporate current events into multicultural classes with master's level counseling students and determine how individual meaning is created from the intentionally chosen education practice.

Garcia, Brittany; Garcia, Brittany; Wade, Mario

Category: Adversity & Resilience

Degree Level: Masters

Poster # 11

Religious LGBT Populations at Risk for Suicide: Competent Counseling Practices

Internalized homophobia has been associated with negative mental health outcomes. A higher rate of internalized homophobia is associated with more reports of suicidal thoughts. (Gibbs & Goldbach, 2015) Religiosity is considered a protective factor against negative mental health outcomes, but a religion's negative attitudes towards homosexuality have been shown to increase internalized homophobia (Gibbs & Goldbach, 2015); this internalized homophobia is associated with high levels of current suicidality. (Kralovec, Fartacek, Fartacek & Ploderl, 2012) The increased levels of suicidality can be explained by the identity conflict that comes from dissonance felt between one's religious identity and LGBT identity. (Gibbs & Goldbach, 2015)

Webster, Alyson

Category: Adversity & Resilience

Degree Level: Masters

Poster # 41

Religious LGBT Populations at Risk for Suicide

There is an elevated risk of suicidality among the LGBT population and an even higher risk among LGBT that have a sense of belonging to a non affirming religion that creates internalized homophobia. Our poster will provide counseling practice resources that focus on a goal of self-acceptance and authenticity. (Literature Review)

MEDICAL LAB SCIENCE

Bearce, Hollie

Oral Presentation Category: Building Success Across Diverse Context

Poster Category: Teaching and Learning Gaps

Degree Level: Masters

Poster # 49

Establishing Professional Learning Centers Within Rural Hospital Clinical Laboratories

Background: The state of clinical laboratory science, both academically and professionally, in the United States is dire; the profession is headed toward a

workforce shortage crisis while the number of available academic programs has significantly decreased (ASCLS position paper). Within the next decade, it is estimated that approximately 40% of the workforce will retire (US Department of Labor & Statistics, ASCLS: Clinical Laboratory Workforce). The current number of Medical Laboratory Science graduates in programs throughout the United States is not adequate to meet the current need within the profession and is grossly inadequate to meet future workforce demand as the baby-boomer generation begins to retire. New professionals entering the workforce will be required to master additional skills, be fiercely independent and competent, and to step into responsibility sooner than prior generations of new professionals. Establishing a dedicated learning center within the professional field that partner with existing academic programs can assist students and new professionals achieve these daunting tasks.

Objectives: To improve the knowledge and competency of St Luke's Wood River Laboratory employees through maintaining a repository of unusual clinical findings, creating an interactive resource board and a depository for assorted training materials. To provide a resource for current/prospective MLS students, newly graduated and young professionals. To improve interdepartmental communication and training regarding clinical laboratory science.

NURSING

Miner, Mallory

Category: Health & Innovations

Degree Level: Doctorate

Poster # 22

Improving The Chlamydia And Gonorrhea Screening Process Using The Shared Decision Making (SDM) Model

Chlamydia and gonorrhea are a growing problem nationally with significant health consequences, particularly in the childbearing population. Funding for sexually transmitted disease preventative screening has decreased nationally, particularly through the Public Health Department entities, with initiation of pay for service which has resulted in a significant number of young women refusing this screening.

Nurses in the public health system have identified a need for educational development to enhance decision making and risk reduction in young women presenting for wellness support services.

The Shared Decision Making (SDM) provides a framework to efficiently communicate with patients about health options and associated risk, and verify understanding of these for informed decision making. The SDM approach can be learned and utilized by public health nurses and can be used during time-pressured medical interactions. As a patient education approach, SDM acknowledges the patient's preferences, allows the patient to make informed choices, shows respect for the patient's decisions, and is associated with improved satisfaction with healthcare decisions. If collaboration and deliberation could be achieved routinely, it

is proposed that well-informed preference-based patient decisions might lead to safer, more cost effective and patient centered healthcare approach.

Visual aids (VAs), in a graphic format, incorporated in the shared decision making approach offers one of the most promising methods for efficiently communicating risk with diverse populations. Specifically, VAs are helpful for young adults with low numeracy and high graph literacy. When compared to usual care, the use of VAs increases individual involvement in decision making and is used to build knowledge with the nurse or provider serving as the mentor, assisting the patient to be more confident in choices of health care options.

This DNP project is designed to educate and support the Public Health Nurse (PHN) in their use of SDM in nurse/patient interactions during women wellness exams

Linn, Joy

Category: Health & Innovations

Degree Level: Doctorate

Poster # 27

Knowledge Needs in Barriers of Pain Management of Frontier Providers

Background: A recent estimate of the prevalence of pain in the United State is that 100 million Americans are living with chronic pain conditions. This number translates to about one in two adults in the entire population. This prevalence of pain is greater than the number of adults affected by heart disease, cancer and diabetes. Direct and indirect costs amount to \$635 billion annually. Due to the pervasiveness of chronic pain the Institute of Medicine (IOM) recommends that pain management be considered a national priority. With only one pain specialist for ever 33,000 individuals suffering from chronic pain in the United States, the role of the nurse practitioner (NP) is extremely vital to improve access to care (Kawi, 2016). Those living in rural and frontier areas have different health status than their urban counterparts. The life expectancy of rural people is 1-2 years lower and up to 7 years lower in frontier area, compared to urban dwellers. Health care professionals must understand the reticence of rural people with pain to reveal the true extent of their condition (Tollefson et al., 2011).

Purpose: The purpose of this scholarly project (SP) is to examine rural primary care providers perceptions of providing care for patients with chronic pain. In a time with concerns over scrutiny of regulation compliance and opioid misuse, prescribing behaviors of primary care providers may be affected. Attitudes of primary care providers about the management of patients with non-cancer pain are constantly changing and can affect long-term outcomes of these patients. The goal of this project is to further examine the knowledge and attitudes about management of patients with chronic pain in rural health care providers. This information will be used to overcome perceived barriers and to make recommendations for improved clinical practice.

Hanley, Shirley; Tavernier, Susan; Wanta, Sandi

Category: Adversity & Resilience

Degree Level: Doctorate

Poster # 23

Impact of Quality of Life Guided Interventions for Depressed Veterans

According to the Veteran's Administration (VA)'s National Registry for Depression, 11% of Veterans 65 and older have a diagnosis of major depressive disorder (MDD). These findings suggest that treatment for depression should be an essential practice priority. Health related quality of life (HRQoL) is significantly lower in patients with MDD. Research demonstrates a significant and inversely correlated relationship between HRQoL and depression; interventional studies focus on treating depression to improve HRQoL. However, the intrinsic relationship with HRQoL suggests it is reasonable that individualized HRQoL focused interventions would impact depression.

The purpose of this scholarly project was to assess if interventions tailored to improve HRQoL affect depression among veterans with MDD.

Woods, Tanna; Nies, Mary

Category: Social Influences

Degree Level: Doctorate

Poster # 33

Understanding Parental Misclassification of Child Weight Status

The purpose of this study is to explore factors affecting parental perception of their child's weight and the interaction with parental health knowledge, beliefs, and practices. Parents have a noted inaccuracy classifying their child's weight, but are also major influences for early childhood obesity prevention. It is crucial to understand their perspective to frame appropriate interventions. Literature supports that there is a problem with parents misclassifying the weight of their children and therefore with their ability to recognize when weight becomes a problem. Parents are more able to classify extreme weight deviances than smaller deviances. Excess weight in young children predicts excess weight in adolescence and adulthood. If a child is overweight in the 2- to 6-year-old range, they are five times more likely to be overweight or obese in adolescence. There is not a clear understanding of why parents misclassify weight and if they understand that this misperception could lead to further obesity and health risk for the 2- to 6-year-old child who is at a critical point in development. It is also not clear whether misclassifications are related to a lower likelihood of parental intervention. While the existence of misperception is well-documented in adolescents, it has not been applied to the 2- to 6-year-old range. Furthermore, work has been limited on what contributes to the parental misclassification at any age. Understanding parental misclassification based on factors like parental age, sex, BMI, education, SES, health knowledge, health beliefs, and ethnicity can help understanding and highlight needs for interventions to counteract the factors. This is especially crucial as obesity rates rise and the need for health promotion and intervention increases. This study will address the need

and identify key factors that affect parental misclassification of weight and health knowledge to determine appropriate interventions for childhood obesity.

PHARMACEUTICAL SCIENCES

Afrin, Farjana

Category: New Paradigms in Science & Engineering

Degree Level: Doctorate

Poster # 51

A Rigid Phthalimide Linker Based Design, Synthesis and Structure-Activity Relationship Studies of Sphingosine Kinase Inhibitors

Sphingosine-1-phosphate (S1P) is a bioactive sphingolipid that regulates 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. While, double knockout studies in mice suggest that SphKs are the sole source of S1P, some functional redundancy exists as SphK1 or SphK2 null mice are viable and fertile. 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.

COLLEGE OF SCIENCE AND ENGINEERING

BIOLOGICAL SCIENCES

Zorio, Stephanie; Werth, Jason; Aho, Ken

Category: Natural Science & Environmental Studies

Degree Level: Doctorate

Microbial connections between atmosphere, vegetation, and soil in alpine ecosystems, Yellowstone National Park, USA

A considerable amount of research exists on microorganisms and their interactions with plants, particularly regarding important agriculture species. Less is known, however, about the biodiversity and integrated ecology of alpine plant communities and proximal bacterial communities in the air and soil.

Sharma, Harmandeep; Reinhardt, Keith; Lohse, Kathleen

Category: Natural Science & Environmental Studies

Degree Level: Doctorate

Poster # 32

Diel and seasonal carbon fluxes from leaf to ecosystem scales in sagebrush steppe ecosystems

Sagebrush steppe is one of the largest semi-arid ecosystems in western North America, covering about 4.5×10^6 ha of total land area. This ecosystem has been identified as a potential carbon (C) sink. The greater sagebrush steppe ecosystems of the Intermountain West consist of many species and subspecies of sagebrush

(*Artemisia* spp.). It covers a wide geographical range with distinct climatic conditions ranging from rain- to snow-dominated environments. With changing climatic conditions, the distribution and associated ecosystem functions of this ecosystem are expected to shift. However, it is hard to predict how the ability of these ecosystems to sequester C in the future will change without basic knowledge of the C balance (C gain vs C loss) of these systems at different organizational scales. Previous studies have found phenological, morphological, and ecophysiological differences among sagebrush subspecies, but we don't know how these differences influence the overall C balance.

Huber, David Matt

Category: Natural Science & Environmental Studies

Degree Level: Doctorate

Response of Soil Carbon Pools to Climate and Landscape Changes for the Northern Great Basin-Sagebrush Steppe Region

The Sagebrush Steppe and other drylands are believed to store considerable amounts of soil carbon despite their low productivity. Drylands in general comprise 41% of Earth's terrestrial surface but uncertainty exists about their response to changes in climate. Furthermore, drylands are experiencing disproportionate shifts in plant community composition that alter carbon cycling and storage. Therefore, we conducted a long-term field experiment to examine precipitation and vegetation effects on soil organic and inorganic carbon storage within the Sagebrush Steppe.

Behn, Kathrine; Baxter, Colden

Category: Habitat of Wildlife and Insects

Degree Level: Doctorate

Poster # 10

The Trophic Ecology Of A Desert River Fish Assemblage: Influence Of Season And Hydrologic Variability

Food webs are valuable tools for depicting the feeding relationships within communities of organisms, however like any other analysis these descriptions are dependent upon accurate data which encompass the full spectrum of food resources. Weak linkages and high diversity are thought to be stabilizing features of food webs that can account for resilience under environmentally variable conditions, however these features are often overlooked in favor of strong linkages. The free-flowing desert rivers of the American Southwest are naturally dynamic ecosystems containing fishes adapted to withstand large fluctuation of flow, temperature and sediment loads. Along with unique morphology, it is thought that plasticity in the feeding behavior of desert fishes enables them withstand the variability associated with swings in seasonal and hydrologic conditions. Over the course of 2 years, we investigated the feeding ecology of the fish assemblage of the Little Colorado River, Arizona. We collected fish diet samples in July, September, January, March and June which included the following hydrologic-seasonal combinations: turbid summer, turbid fall, clear-water winter, turbid late winter, and clear-water summer. Despite being only small subsamples of the greater ecosystem food web, our

illustrations show high diversities of dietary items in terms of both absolute numbers and consumer-to-resource ratios, within a fish community that is apparently resistant to extreme variability. All native fishes consumed a mix of terrestrial and aquatic resources, though the drift-feeding humpback chub had the largest percentage of terrestrially derived food items and appeared to capitalize on food resources made available by a summer flash flood. We propose that an opportunist/generalist feeding habit that takes advantage of both in-stream and terrestrial food resources as they are available, resulting in a food web of many weak linkages, has allowed native species to persist in this highly variable environment.

Bayless-Edwards, Landon; James, Groome

Category: New Paradigms in Science & Engineering

Degree Level: Doctorate

A Network Analysis of Residue Interactions in the Domain IV Voltage Sensor of NaV1.4.

Voltage-gated ion channels are membrane proteins that propagate action potentials as the central signaling mechanism of the nervous system and muscle fibers. These ion channel open, close or inactivate in response to changes in membrane potential due to their intrinsic voltage sensitivity. Each channel is made up of four domains, each containing a voltage-sensor motif and a pore motif. The voltage sensor contains a collection of charged residues that cause a conformational change in the voltage sensor in response to changes in membrane potential. Mutations in these charged residues cause diseases including epilepsy, cardiac arrhythmia, and neuromuscular disorders. Subsequently, current research focuses on understanding the molecular mechanisms of voltage-gated ion channels and the basis of α channelopathy diseases. However, large, eukaryotic membrane proteins are difficult to crystallize, so structures of simpler prokaryotic ion channels are used to create homology models of voltage-gated ion channels. Such an approach allows computational modeling and simulation to complement functional studies of these channel mechanisms. As part of a larger project, I have begun to characterize the role of specific voltage-sensing residues in NaV1.4, a voltage-gated sodium channel in human skeletal muscle. My work combines electrophysiological recordings and three-dimensional computer simulations that will allow me to determine key electrostatic interactions occurring between residues during state transitions. At this point, I have successfully simulated the movement of the domain four voltage-sensor from an intermediate state to the resting state and from an intermediate state to the activated state. From these simulations, I have created residue interaction networks that begin to support conclusions drawn from electrophysiological data. This technique combining electrophysiological data and computational models could potentially be applied to understanding the mechanisms behind these neuromuscular diseases.

Whitaker, Jessica

Category: Healthcare Systems & Innovations

Degree Level: Doctorate

The Role of Central pH and CO₂ Chemosensitivity on Bioelectric Rhythms for Breathing during Prenatal and Perinatal Development of the Altricial Zebra Finch

Neural circuits that allow humans to perform life sustaining-rhythmic motor behaviors like breathing form and mature during embryonic development. In adult animals, pH and CO₂ are important signals for maintaining excitatory drive and breathing stability. However, the role of pH and CO₂ remains unknown during early development. Using the zebra finch embryo as a model, our laboratory has described the progression of respiratory-related rhythmic motor output from embryonic day (E) 4 to hatching. This rhythmic motor output exhibits dynamic changes in pattern and timing during development, possibly reflecting a transition from widespread undifferentiated spontaneous neural activity to more localized and differentiated micro-circuits necessary for functional breathing. Thus, our short-term goal is to determine the role of pH and CO₂ on early rhythmic motor output, and our long-term goal is to better understand the role of chemosensitive drive in the developmental transition from generalized to specialized rhythmicity for breathing behaviors.

MacNeille, Ruth; Lohse, Kathleen; Sarah, Godsey; Emma, McCorkle

Category: Agricultural & Environmental

Degree Level: Doctorate

Poster # 24

Transformation and Transportation in Intermittent Streams: Carbon and Nutrient Patterns as Streams Dry.

Climate change in the western United States is projected to result in earlier snowmelt (Stewart et al., 2004), which will increase fire risk (Parks et al., 2016) and potentially transition perennial streams to intermittent ones (Jaeger et al., 2014). Dynamic interfaces between saturated-unsaturated surfaces and extensive hyporheic exchange make intermittent streams biogeochemical hotspots (Larned et al., 2010). Moreover, stream drying patterns may play an important role in the carbon and nutrient dynamics of intermittent streams (Stanley et al., 1997). Intermittent streams, especially the temporal and spatial patterns of carbon and nutrient dynamics during periods of drying, are understudied (Stanley et al., 1997). We are examining the spatial and temporal patterns of surface water biogeochemistry and testing possible factors driving these patterns in two intermittent headwater streams in southwest Idaho. We hypothesize that as streams dry, carbon concentrations will increase due to evapoconcentration, increasing in-stream production, and/or because of shifts to ground water inputs that have high base-level carbon concentrations. Further, we expect that the biogeochemical patterns of streams will become increasingly spatially heterogeneous with drying. Finally, we expect that these patterns will vary in response to fire.

Paris, James; Buckskin, Preston; Wadsworth, Zachary; Eckersell, Adam

Category: Habitat of Wildlife and Insects

Degree Level: Doctorate

Poster # 37

Impact of Lost Floods on Fish and Food Webs In A Regulated River Floodplain

The mosaic of habitats referred to as the Fort Hall Bottoms, which includes the Snake River and a suite of floodplain springbrooks located on the Fort Hall Reservation in southeastern Idaho, represents one of the few intact river-floodplain ecosystems remaining in the region. However, regulation of the Snake River's flow and overdraft of groundwater for agriculture appears to have reduced scouring floods originating from the Snake River and decreased flows in the floodplain springbrooks themselves. These together have caused accumulations of fine sediment in the springbrooks and a commensurate loss of gravel habitats important to sustaining invertebrate prey for fishes. In 2015-2016, we completed a year-long field study to seasonally examine food web dynamics within a range of floodplain habitats and determine if resident populations of fishes, and in particular Yellowstone cutthroat trout, rainbow trout, and their hybrids, are experiencing food resource limitation linked to reductions in hydrologic scour. We observed that non-insect taxa, such as amphipods, were the primary prey items consumed by salmonids in non-scoured springbrook habitats, which reflected the relative abundance of these invertebrate taxa in benthic communities. In a springbrook habitat that experiences periodic scour, however, aquatic insects were more abundant and salmonids proportionally consumed more of these taxa. Furthermore, the salmonid populations in this habitat were principally composed of juvenile and sub-adult individuals, whereas in other springbrook habitats, adult salmonids dominated and smaller size classes were generally rare. Based on these initial findings, our working hypothesis is that through a combination of factors ultimately related to the loss of scouring floods, including decreased habitat for successful spawning, reduced food availability for juvenile rearing, and increased piscivory by adult fishes, a bottleneck at the juvenile life stage is constraining populations of salmonids on the Fort Hall Bottoms, but we need further analyses to corroborate this hypothesis.

Ortiz, Jade

Category: Habitat of Wildlife and Insects

Degree Level: Doctorate

Poster # 46

An investigation of spatial complexity in river-floodplains and its effects on insect emergence and terrestrial insectivores

Emergence of adult aquatic insects is a resource flux that can influence a suite of terrestrial insectivores, and in river-floodplains this flux and the movements of consumers link local food webs in a larger, meta-food web. Owing to such connections, spatial complexity of river-floodplain habitats (or, reciprocally, their

homogenization) may influence numerous terrestrial organisms, but these relationships are poorly understood. We are conducting a year-long study to investigate the effect of spatial heterogeneity on the emergence of aquatic insects, and subsequent consequences for terrestrial predators (using spiders and bats as indicator species) within the Fort Hall Bottoms river-floodplain mosaic.

Sharma, Harmandeep; Reinhardt, Keith; Lohse, Kathleen

Category: Agricultural & Environmental

Degree Level: Doctorate

Poster #

32

Variation in plant water use and environmental drivers of sap flow in sagebrush communities spanning rain- to snow-dominated elevation zones

Sagebrush (*Artemisia* spp.) is a widespread and locally dominant shrub throughout much of western North America, occupying >66 million ha. Sagebrush steppe provides many important ecosystem services including water and carbon (C) storage, as well as providing critical habitat for several threatened and endangered animal species. Because these systems are water limited, changes in precipitation regimes associated with climate change are predicted to alter ecosystem processes such as water and C storage and cycling. However, such changes are hard to predict due to lack of fundamental information on plant water use in sagebrush. While a few studies have been conducted that analyze differences in water budgets in sagebrush ecosystems at landscape scales using eddy covariance methods, data on plant water use at organismal scales are few.

Condo, Theresa; Reinhardt, Keith

Category: Agricultural & Environmental

Degree Level: Masters

Poster # 4

What causes lower treeline? Hydraulic strategies of Douglas-fir along an elevation gradient

Montane coniferous forests in the Intermountain West, USA are bound by upper and lower treelines. Lower treelines in the Intermountain West are generally assumed to be limited by water, but more evidence is needed to support this claim. Here, we choose to test the hypothesis that lower treelines in the Intermountain West are explained via water limitations using xylem hydraulic measurements. We measured intraspecific variations in xylem hydraulic vulnerability to drought on Rocky Mountain Douglas-fir (*Pseudotsuga menziesii* var. *glauca*) along an elevation gradient in southeastern Idaho. Specifically, we measured leaf and branch level drought-induced hydraulic vulnerability to see which hydraulic strategies trees at lower treeline employ. We predicted that *P. menziesii* at lower elevations are less vulnerable to drought-induced hydraulic dysfunction than individuals growing upslope. Additionally, we collected a suite of xylem anatomical and morphological measurements on *P. menziesii* stem cross sections to see if the trees make adjustments in their xylem architecture throughout their elevation range. Our

research provides information about the hydraulic strategies of *P. menziesii* a common lower treeline species in the Intermountain West from its lower to upper elevation limits.

ENGINEERING

Muppaneni, Naga Spandana

Category: New Paradigms in Science & Engineering

Degree Level: Doctorate *Augmented Efficiency of CLA Logic Though Multiple CMOS Configurations*

Adders are the basic building blocks in the digital systems and addition is an indispensable operation in Digital, Analog and Control Systems. Performance optimization of a digital adder relies on the parameters such as power, speed and area such. An enduring research has been going on in optimizing the delay and power dissipation of adders. Carry-lookahead adder (CLA) is considered as one of the fastest digital adders. It emerges from the concept of computing all incoming carriers in parallel.

This research introduces the various design implementations using CMOS transistors, producing unique logic of Carry-lookahead adder. Each design implementation is analyzed by assessing the power dissipation and the delay at every possible state by transistor sizing. It elucidates, how lowering the overall supply voltage reduces the power dissipation of the circuits, without compromising in its frequency.

Simulations have been done on Tanner EDA tools based on 250nm technology at 2.5V supply voltage. The previous works [1] on the CLA have been examined and progressed the 8-bit design of CLA and its propagation delay and power dissipation has been evaluated.

Daniels, Maxwell

Category: New Paradigms in Science & Engineering

Degree Level: Masters

Design and Qualification of Safety Channels for the Idaho State University AGN-201 Nuclear Reactor

This body of work provides the basis for the design of circuitry for the control of the Idaho State University (ISU) AGN-201 research reactor via a modern control console. As there are only 5 AGN-201's left in existence there is no commercial replacement control console available. The design must incorporate every system currently used in the vacuum-tube driven control console.

To meet the standards set forward the control console requires three safety channels each with a very distinct function. Channel 1 is considered the startup channel and ensures proper location of the source. This channel has test frequency generation, signal processing capabilities, logarithmic count rate circuitry, and a trip circuit designed to scram the reactor at rates less than 0.5 hertz. Channel 2 is the logarithmic and period channel. The logarithmic amplifier in the channel is designed

to function in a dynamic range between 10⁻¹³ and 10⁻⁶ using a logarithmic transfer function that also corresponds to an analog meter. Channel 2 also generates test frequencies and switches them into the logarithmic amplifier to test: offset, span, low-trip, high-trip, and period for channel 2. The period meter functions off of a differentiating amplifier and in turn this amplifier drives the period meter. Channel 3 is the linear channel responsible for precise measurement of reactor power. The linear amplifier for the Channel 3 is a very sensitive electrometer capable of measuring input currents from 10⁻¹³ to 10⁻⁷. This electrometer is paired with a switch capable of 15 selectable ranges that correspond to reactor powers from 1 microwatt to 5 watts. The electrometer then drives a Channel 3 module which contains high-trips, low-trips, and a power integrator for every range. Each of the trips will drive relay circuitry capable of scrambling the reactor by breaking the current to the rod drive magnets.

Tandukar, Sabin

Category: New Paradigms in Science & Engineering

Degree Level: Masters

Solar PV Power Plant Simulation

While in electronics, LTSpice and other Spice based simulators are widely used to simulate complicated electronics circuit, same cannot be said for solar power systems.

Solar Energy recently became cheaper than wind energy and is almost half the price of coal and other fossil fuels in some countries. With the rapid growth of use and generation of solar power energy, it is more important than ever to have efficient and easy to use tools for design and analysis of solar power plants.

SPICE (Simulation Program with Integrated Circuit Emphasis) is a software tool used for electronics simulation. It is widely used as a basis for circuit simulators such as LTSpice, PSpice, TINA and others. SPICE has proven to be a versatile simulator, and can definitely be used for solar power plant simulation. There are actually bare bones models for solar panels in LTSpice.

As with any simulation, the issue is how accurately a model can be developed for the system we want to simulate and analyse. This is a significant issue with solar power plants, as they depend on many parameters, both external and internal. Some of the parameters are controllable while others aren't. The simulator will also need to be able to take into account the environmental parameters such as irradiance, temperature, shading etc. The simulator will also need to take in temperature and irradiance data and simulate the power generated over a period of time. The simulator will also need to take into account the different types of photovoltaic panels that may be used.

Dhamala, Anupama; Tandukar, Sabin

Category: New Paradigms in Science & Engineering

Degree Level: Masters

Optical Communication Research Archive

Optical Communications is a fast growing and evolving field in telecommunications. It has to date, achieved speeds of up to 4 terabits per second[2]. It may indeed be the future of wired communication and sate the huge data speed demand of the current always online generation.

Current research in optical communication includes all-optical communication networks, multi-terabit optical networks, laser neural network nodes, etc.

However, with numerous research being undertaken around the globe, it is hard to keep track of every advance in the field of optical communication. Therefore, this project will aim to review various research and their breakthroughs over the past ten years and create a collection of all the advances. Also, the project aims to explore various simulation tools used for analysis of optical fibre communication.

Tohidi, Hamed

Category: Natural Science & Environmental Studies

Degree Level: Masters

Effect of Sand Content on Behavior of Clay

One of the unknowns in the design of zoned earth dams is the percentage of sand which can be present in an impervious core and still retain the necessary plasticity to prevent cracking in response to deformation. Cracks in the core of a dam caused by differential settlement can lead to failure of the dam.

Deemyad, Taher

Category: New Paradigms in Science & Engineering

Degree Level: Masters

Poster # 9

Design of a Five-Fingered Underactuated Hand for Two-Position Tasks

The design of a five-fingered wristed robotic hand is discussed. The robot is capable of showing two signs with fingers using a kinematic synthesis technique and one revolute joint per finger.

The resulting candidate designs have two specified positions, first and second sign. This work deals with the implementation of these designs with minimal actuation. A coupled transmission system is designed in which all fingers are actuated by a single motor while each finger has its own separate reduction.

The reduction ratios are modified in order to adapt to different finger signs. The difference in behavior between this implementation and an underactuated, compliant design is studied.

Two different transmission systems; pulley-belt system and linkages system are compared in both planar and spatial case.

To define the tasks, we used Motion Capture System to record data for two sets of positions of fingertips in space. After determining the Hand-Topology, and Task, we used Kinematic Synthesis method, to find all the design parameters of the robot. These include length of links, positions of joints, and angle between links. Finally, we sketched a 3D model of our robot with SolidWorks and made a real model using prototyping. If you want to explain the methodology in this paragraph, then you should talk about designing serial chains to reach the positions in a first step, and then designing the constrain system in a second step to obtain a 1-dof system for each finger.

Robin, Ishtiaque; Hoffman, Andrew; Chaczko, Malwina

Category: New Paradigms in Science & Engineering

Degree Level: Masters

Poster # 29

Pre-irradiation Characterization of Nanocrystalline and Ultrafine Grained Austenitic Stainless Steel

The present situation in nuclear power development has come to a point where increasing burnup is restrained by the limitations of materials. The advancement of next generation reactors mostly depends on how effectively the reactor material can handle the high temperature and massive irradiation. Steel is used as structural materials and fuel cladding in current light water reactors (LWR) and molten salt reactors like EBR- II. The consequence of extreme environment causes radiation damage in the form of void defects which cause embrittlement of the steel. Thus, irradiation hardening, embrittlement, swelling, stress corrosion cracking and ion irradiation segregation take place. Manipulating microstructure is the easiest way to minimize these bad effects that come with irradiation. Increasing the amount of grain boundary with smaller grain size is an effective way to defend these problems as more grain boundary can provide more defect sinks, resulting greater tolerance for radiation. Our research is focused on the preparation of steel with severe plastic deformation in two ways: High Pressure Torsion (HPT) & Equal Channel Angular Pressing (ECAP), where these two techniques cause the increment of the area of grain boundary.

GEOSCIENCES

Anderson, Jerad; Guilinger, James; Meese, Graham; Crosby, Benjamin

Category: Historical Perspectives

Degree Level: Masters

Poster # 3

Visualizing land use and water quality using location-based photography: a river kayak survey of Marsh Creek, Bannock County, Idaho

Linking land use and human activity to the overall sediment budget of an impaired agricultural watershed presents the challenge of identifying diffuse and unevenly distributed sediments sources. This study aimed to better spatially constrain

sediment flux, possible sediment sources, and land use relationships in Marsh Valley. It is hypothesized that increased suspended sediment loads are primarily sourced from bank material and may be enhanced by the nature, location, and extent of land use and mitigated by riparian vegetation. Results carry implications for relevant ecosystem services stakeholders in the form of land use planning and associated best management practices.

Deshpande, Nakul; Crosby, Benjamin

Category: Natural Science & Environmental Studies

Degree Level: Masters

The structural fabric and deformation of a mountain logjam: creep, cameras and chopsticks

Wood and sediment are integral agents in the river transport processes that facilitate the chemical and physical evolution of landscapes. As such, the two pose an almost poetic contrast to each other: wood is buoyant, organic and elongate while sediment is dead, dense, and round. Despite wide recognition of the value of wood to river corridors, our mechanistic understanding of logjam kinematics and mobility is limited. This is in part due to historic logging practices that alter forests and “natural” river-wood feedbacks as well as contemporary attitudes that regard logjams as a nuisance. Both severely limit our ability to observe logjams in the field. Existing physically-based rules for wood transport are insufficient for this task at hand; a simple force balance approach quickly breaks down in the face of the complexity of the underlying kinematic fabric. Here, we present the results of a yearlong survey of an actively deforming logjam in the Salmon River Mountains, central Idaho. We use interval photography, pressure transducer/water level loggers and total station measurements of ~150 logs within the jam (about 10% of the total population), to document where and when logjams move. The mean cumulative magnitude of displacement during the high-flow period is 2.06 m +/- 1.51 m, much of which occurred during a single event. Smaller magnitude creeping movement also occurs as the jam experiences cyclic quasi-diel fluctuations in stage due to snowmelt-generated discharge. Our results highlight the interplay between horizontal drag forces and vertical buoyant forces in governing the network of frictional connections and subsequent deformation within the logjam.

Guilinger, James

Category: Natural Science & Environmental Studies

Degree Level: Masters

Suspended sediment load and geochemical data reveals near-channel sediment sources along an impaired Idaho channel

In agricultural settings, suspended sediment sources are commonly non-point with broad areal distributions within the landscape (EPA, 2016). Given the extensive nature of these sources, mitigation can be a challenge. Most suspended sediment studies employ only one or a few monitoring stations within a watershed to characterize the magnitude and timing of sediment flux. Identifying sources using

many automated sensors along the mainstem has not been explored and is the focus of this study. The study site is Marsh Creek, an impaired agricultural channel in southeast Idaho.

Mallonee, Hester; Kobs Nawotniak, Shannon; McGregor, Michael; Delparte, Donna

Category: Natural Science & Environmental Studies

Degree Level: Masters

Quantitatively mapping lava flow textures at Craters of the Moon

Lava flow textures reflect internal and external conditions that affected the flow during its emplacement. These textures range from smooth pāhoehoe to jagged with transitional textures between. Rougher flow textures are the result of higher shear stresses, higher viscosities, or disruption of the rapidly cooled crust. We can gain insight into the eruptive history of a basaltic volcano by mapping lava flow textures.

Historically, qualitative observations of aerial imagery or field deposits have been used to map lava flow textures. This results in subjective interpretations, and therefore less reliable maps.

Radke, Anna; Godsey, Sarah; Lohse, Kathleen; Patton, Nicholas

Category: Agricultural & Environmental

Degree Level: Masters

Poster # 50

How Does Your Soil Carbon Flow?: Hydrologic Connectivity and Soil Carbon Export in Reynolds Creek Critical Zone Observatory, Owyhee County, Idaho

Carbon dynamics in snowmelt-driven watersheds are expected to change significantly as climate shifts (Brooks et al., 2011). While carbon dynamics have been studied extensively in catchments with uniformly distributed precipitation (e.g. Sanderman et al., 2009; Brooks et al., 2011), many snowmelt systems experience redistribution of snow in the form of drifting (Winstral and Marks, 2014). How this redistribution affects carbon dynamics in these watersheds is an open question.

Meese, Graham

Category: Agricultural & Environmental

Degree Level: Masters

Poster # 36

Floods, Fences, and Fine Sediment: Building the historical context for restoration in Marsh Creek, ID

Urban growth and the increase of agricultural and industrial production have degraded the quality and quantity of water in many rivers worldwide (Ridoutt and Pfister, 2010). This is the case regarding the Portneuf River in southeast Idaho. The dominant source of the fine sediment impairing water quality in the Portneuf River comes from Marsh Creek, a highly impacted, agriculture-dominated tributary, which has been classified as impaired under the Clean Water Act (EPA, 2002). Since the

1980s, a range of initiatives and conservation projects have aimed to reduce the sediment load in Marsh Creek, but like many restoration efforts, quantitative post-project monitoring has been scattered or non-existent (Wohl et al., 2005).

Jurkowski, Carl; Jurkowski, Carl; Finney, Bruce

Category: Habitat of Wildlife and Insects

Degree Level: Masters

Poster # 30

History of Salmon: A story of Situk Lake, Yakutat, Alaska

Salmon play an important role in the economic, ecological, and cultural well-being of Alaskans. Understanding how geologic, climatic, and anthropogenic influences impact salmon productivity is important when implementing regulations. In this study, we analyzed lake sediment $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ stable isotope ratios from Situk and Mountain Lake, Yakutat, Alaska to understand effects that a proximal glacier, Hubbard Glacier, has on salmon productivity. Hubbard Glacier is a surging, tidewater-calving glacier which acts independently from climatic forcing. Advances of Hubbard Glacier can dam the nearby Russell Fjord, turning it into a lake, Russell Lake. Sustained damming of Russell Lake can cause an overflow into the Situk River drainage area increasing the drainage area from 215 km² to over 2,072 km², potentially affecting the local economy of Yakutat by altering the ecology of Situk River.

The goal of this project is to determine effects climate change, glacial advances (and subsequent damming), and harvesting have on salmon populations in the region. Knowledge gained from this project will be shared with residents in hopes of regional fisheries managers implementing better rules and regulations that will lead to a more sustainable salmon production.

PHYSICS

Sluder, Daniel

Category: New Paradigms in Science & Engineering

Degree Level: Masters

Searching for Physics Beyond the Standard Model with Calorimeters

The Standard Model of Physics has been a highly successful theory. The Moller Experiment at Jefferson Lab proposes to look for deviations from the Standard Model through high precision measurement of the parity-violating asymmetry in polarized electron-electron scattering. Measurement of the parity-violating asymmetry will result in a better understanding of the weak charge of the electron. My research involves the design and justification of a set of calorimeters, called showermax, that will be able to provide an independent measurement of this asymmetry. I will provide an overview of the Moller experiment and the physics it addresses. I will also explain how electromagnetic calorimeters can be used to detect particles and provide an independent measurement of asymmetry in electron-electron scattering.

