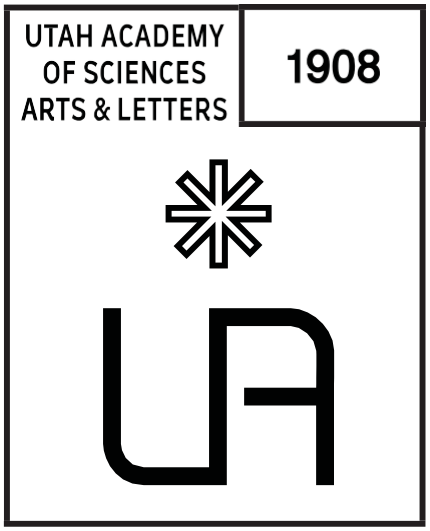

UTAH ACADEMY
of
Sciences, Arts, & Letters

Established 1908

Annual Conference

March 22, 2025

Utah Valley University

UTAH ACADEMY OF SCIENCES, ARTS, & LETTERS

Annual Conference - Saturday, March 22, 2025
Utah Valley University
Held in the Fulton Library (FL)
and Clarke Building (CB)

8:30 a.m.- 9:30 a.m.
Check-in and Registration
FL 100 Concourse

9:30 a.m. - 9:35 a.m. – Angela Banchero-Kelleher, President
Welcome to Utah Valley University
Plenary Session
FL 120

9:35 a.m. - 10:00 a.m. – Keith Lawrence, President-Elect
Presentation of the James H. Wolfe Award
Doran Jay Baker, Kay Dane Baker, and Allan Joseph Steed, Space Dynamics Laboratory, Utah State University (posthumous recipients)
Accepting the award: Jed Hancock, President, Space Dynamics Laboratory, Utah State University
Wolfe Address: Jed Hancock

Willard and Viola Gardner Prize
Shannon Hale

10:00 a.m. - 10:30 a.m. - Angela Banchero-Kelleher, President
Distinguished Service Award
Dr. Kathryn Bond Stockton

O.C. Tanner Lecture:
"I Was a Queer Child: What that Might Mean for You"
By Dr. Kathryn Bond Stockton

10:30 a.m. – 10:45 a.m.
Excursion announcement

10:45-11:00 a.m.
Conference Photo – Bingham Gallery/Roots of Knowledge

11:00 a.m. -12:00 p.m.
Poster Session – FL 428 Lakeview and FL 421 Timpanogos Rooms

12:00 p.m. – 1:00 p.m.
Lunch – FL 100 Main Concourse/Fl 101 Bingham Gallery

1:00 p.m. – 5:00 p.m.
Oral Sessions – Clarke Building

2:30 p.m. – 3:00 p.m.

Refreshment Break – FL 100 Main Concourse/Fl 101 Bingham Gallery

Utah Valley University Clarke Building

ARTS:

Session A: Room: CB 307

BIOLOGICAL:

Session A: Room: CB 412

BUSINESS:

Session A: Room: CB 404

EDUCATION:

Session A: Room: CB 416

ENGINEERING:

Session A: Room: CB 308

HUMANITIES/PHILOSOPHY/FOREIGN LANGUAGE:

Session A: Room: CB 417

KINESIOLOGY & HEALTH SCIENCES:

Session A: Room: CB 414

LANGUAGES/LITERATURE:

Session A: Room: CB 415

PHYSICAL SCIENCES:

Session A: Room: CB 315
Session B: Room: CB 317
Session C: Room: CB 312

SOCIAL SCIENCES:

Session A: Room: CB 406
Session B: Room: CB 409

5:00 p.m. – 6:00 p.m.

UASAL Board Meeting
La Jolla Groves, Provo Utah
5:30-7:30.

The UASAL spring conference is able to provide the following Technical access:

Every classroom has a projector with HDMI access. All rooms should have an HDMI cord. Presenters should bring any adaptors they need to connect their laptop/iPad to the projector through the HDMI. It is advised that presenters have a backup presentation (e.g., both flash drive and laptop).

Log In Information:

Excursion
Please join the Utah Academy of Sciences, Arts & Letters for our annual Spring Excursion. This year we plan to attend the Utah Shakespeare Festival at Southern Utah University on Saturday, June 21st. We will spend the day hiking in Cedar Breaks National Monument, touring the Adams Memorial Theatre, and/or exploring Cedar City. In the evening, we will enjoy dinner together before attending As You Like It or Steel Magnolias at the Festival. Please reach out to CoCo James (coco.james@utah.edu) to RSVP or for information about how to buy Festival tickets and/or reserve a hotel room. Dinner will be provided by UASAL.

James H. Wolfe Award
Doran Baker, Kay Baker and Allan Steed (Space Dynamics Lab, Utah State University) accepting : Jed Hancock

Doran J. Baker

Doran Baker was born in Salt Lake City. He and his two brothers loved science from childhood forward; they completed many projects in the shop behind the family home, including building one of the first working television sets in Salt Lake. Doran raised chickens to help pay tuition at the University of Utah, earning a PhD in electrical engineering. He completed post-doctoral study at Harvard University and the Armed Forces Technical Institute. While stationed at the Air Force Geophysics Lab in Massachusetts, he met and married Agnes "Kathy" Rivard. Their honeymoon was a drive across the United States to settle in Logan, Utah, where Doran had been hired at Utah State University as a professor of Electrical Engineering. Teaching and working with students became his lifelong passion. Early in his career, he helped establish the Electro-Dynamics Lab which later became the Space Dynamics Laboratory at Utah State. He was also instrumental in developing the SDL's involvement with the NASA space grant consortium. He received numerous honors for his upper-atmospheric research including the Utah Governor's Medal for Science and Technology. He transitioned from teaching to emeritus status at USU after 62 years.

Kay D. Baker

Like his older brother Doran, Kay grew up in Salt Lake City with a deep love for science and space. And like Doran, he also attended Granite High and then the University of Utah, also earning undergraduate and graduate degrees in electrical engineering and physics. He fell in love with and married Carolyn Smith while still an undergraduate at the U; she later followed him to Logan, which they quickly claimed as their real home. Kay and his brother Doran were co-founders of what eventually became the Space Dynamics Laboratory at Utah State University. Kay was a pioneer in the fields of atmospheric science and space engineering. While at The University of Utah, he played a key role in the development of novel space-based techniques to measure atmospheric conditions. Kay and his team at the UARL developed the Standing Wave Impedance Probe, which could directly measure the local electron density. For 30 years, Kay was a dedicated teacher and faculty member at Utah State, serving as head of the Electrical Engineering Department, tenured professor of electrical engineering, professor of physics, and director of the Center for Research in Aeronomy—in addition to his work with the SDL.

Allan Steed

Allan Steed was reared on a dairy farm in Syracuse, Utah, graduating from Davis High. He received, BS, MS, and PhD degrees in electrical engineering from Utah State University where he was mentored by Doran and Kay Baker and where he did graduate work in their Electro-

Dynamics Laboratory. He helped with the transition of the EDL to the Space Dynamics Laboratory in 1982, becoming its president in 1986. He held that position until his retirement in 2003, always considering it an enormously beautiful assignment that occasioned close friendships with his respected coworkers as well as fulfilling associations with state, national, and global leaders. When he wasn't busy with SDL work and travel responsibilities or helping his neighbors in Logan, Allan enjoyed spending time outdoors—camping, hiking, fishing, and stargazing—and he cherished hours with Kaye at their Bear Lake cabin. Regardless of where he was, he always carried a camera to capture nature's beauty. He left lasting imprints on his family and friends, his students, and on the mission and structure of his beloved SDL.

Willard and Viola Gardner Prize

Shannon Hale

New York Times best selling author Shannon Hale started writing books at age ten and never stopped, eventually earning an MFA in Creative Writing. After nineteen years of writing and many rejections, she published *The Goose Girl*, the first book in her award-winning Books of Bayern series. Her other books for young adults include the acclaimed fantasy *Book of a Thousand Days*, the sci-fi adventure *Dangerous*, and genre-bending comedy *Kind of a Big Deal*. Her books for middle grade readers include the Newbery Honor winner *Princess Academy* and sequels, and the USA Today best-selling Ever After High series. With Caldecott-honoree LeUyen Pham, she created her award-winning graphic novel memoirs *Real Friends, Best Friends*, and *Friends Forever* and the bestselling *Itty-Bitty Kitty-Corn* picture books. With director Jerusha Hess, Shannon co-wrote the screenplay for the film adaptation of her novel *Austenland*. With her husband Dean Hale, Shannon co-wrote: Eisner-nominee *Rapunzel's Revenge* and *Calamity Jack* (with Nathan Hale), two books about Marvel's unbeatable super hero Squirrel Girl, DC's *Diana, Princess of the Amazons* series (with Victoria Ying) and *Amethyst, Princess of Gemworld* (with Asiah Fulmore), and the popular early chapter book series *The Princess in Black* (with LeUyen Pham). Shannon's books have been translated into more than twenty-five languages and studied in classrooms from elementary schools to universities. She is a renowned public speaker and advocate for gender equality. She and Dean live with their four children near Salt Lake City, Utah.

Distinguished Service Award And O. C. Tanner Lecture

Dr. Kathryn Bond Stockton

Kathryn Bond Stockton is the Dean of the School of Social and Cultural Transformation, or Transform, at the University of Utah, where she is also a Distinguished Professor of English. She was integral to the creation of Transform in response to the needs of students and faculty in Disability Studies, Ethnic Studies, Gender Studies, and Pacific Island Studies at the university. In the wake of Utah HB-261 and the shuttering of the university's Women's Center, LGBTQ Resource Center, and Black Cultural Center, Bond Stockton has been tireless in securing inclusion and support for marginalized students within the parameters of this new law. Bond Stockton also works to educate the general public through her inclusive and compassionate outreach on behalf of queer people and other minoritized groups. She has appeared on the Ezra Klein Show for the New York Times, has presented on Radio West here in Utah, and has participated in dozens of invited podcasts, panels, and talks. In academia, she impacts research and pedagogy in her fields of interest through books and scholarly articles and through secured

grants. Her works have in turn inspired local and national art exhibits and film festivals.

Journal of the Utah Academy Publication Policy

The Journal of the Utah Academy of Sciences, Arts, and Letters publishes works in all of the fields of study encompassed in the Academy's mission. Papers published in The Journal of the Utah Academy of Sciences, Arts, and Letters are drawn from papers presented by members in good standing at the annual conference of the Utah Academy. The Journal of the Utah Academy is a refereed journal. To qualify for publication, the papers must be recommended through a refereeing system.

Presenters are encouraged to publish their paper in The Journal of the Utah Academy. The Journal's criteria are that a submission is (1) fresh, meaningful scholarly insight on its subject; (2) readable and well written; and (3) of general interest for an academic readership beyond the author's field. If you wish your paper to be considered for publication in The Journal, please submit a Microsoft Word document to the chair of the appropriate division by June 1st 2025. Contact information for division chairs is available on the Utah Academy's website (www.utahacademy.org). Editorial responses will be forthcoming after the resumption of school the following fall when referees have returned their comments to the division chairs.

Papers should be between ten and twenty double-spaced pages. Detailed instructions to authors are available at http://www.utahacademy.org/.

Poster Presentations
Fulton Library

Poster Session
Division Chair: Jacque Westover
Utah Valley University

SESSION A: FL 428 Lakeview and FL 421 Timpanogos Rooms
Session Leader: Jacque Westover
11:00 p.m. - 12:00 p.m.

Arts

Title: Escaping to Margaritaville: Exploring Escapism and Identity through Theatre
Presenter: Madisen Rayburn
Author: Madisen Rayburn
Affiliation: Weber State University

Title: Illuminating Motion: The Art of Dance and Light Synergy
Presenter: Anya Adib
Author: Anya Adib
Affiliation: Utah Tech University

Title: Mind and Body, East and West Integration: Bartenieff Fundamentals and Laban Movement Analysis meets Manipura (Solar Plexus) Chakra
Presenter: Samantha Bickerstaff
Author: Samantha Bickerstaff
Affiliation: Utah Valley University

Title: Textures of faith: the significance of textures in Hindu temples and how they can shape spiritual experiences.
Presenter: Beverly Cademis
Authors: Beverly Cademis and Brandon Ro
Affiliation: Utah Valley University

Title: Empowering Collegiate Dancers: Navigating the Transition to Professional Dance Careers
Presenter: Samantha Marx and Laurie Wilson
Authors: Samantha Marx and Laurie Wilson
Affiliation: Utah Valley University

Title: Reconstructing the Past: Experiencing the Beit Loya Basilica through Virtual Visualization
Presenter: Tyler Hansel
Authors: Tyler Hansel, Brandon Ro
Affiliation: Utah Valley University

Title: Evaluating Biomimetic Architecture Through Eye-Tracking Analysis
Presenter: Dallin R. Hansen
Authors: Dallin R. Hansen, Brandon Ro
Affiliation: Utah Valley University

Title: Monochrome vs. Color: How Architectural Color Choices Affect Visual Attention in Cayala, Guatemala
Presenter: Juliana Martinez
Authors: Juliana Martinez, Brandon Ro
Affiliation: Utah Valley University

Title: Form Follows Function? How Civic Architecture Speaks to the Public
Presenter: Sadie Stutz, Davis McDermott
Authors: Sadie Stutz, Davis McDermott, Brandon Ro
Affiliation: Utah Valley University

Title: Celestial Blueprints: Indigenous Zodiac and Solar Alignments at Tiahuanaco
Presenter: Kierstyn Dimas
Authors: Kierstyn Dimas and Brandon Ro
Affiliation: Utah Valley University

Title: Evaluating Educational Environments: Insights from Post-Occupancy Evaluations of School Buildings
Presenter: Alexandra Elizabeth Mackenna,
Authors: Alexandra Elizabeth Mackenna, Brandon Ro
Affiliation: Utah Valley University

Title: Il Duomo Unveiled: The Role of Architecture in Shaping Extraordinary Experiences at the Cathedral of Santa Maria del Fiore
Presenter: Levi Parry
Authors: Levi Parry, Brandon Ro
Affiliation: Utah Valley University

Title: A Comparative Analysis of Two Gothic Cathedrals Separated by Space and Time
Presenter: Sinikka Lee
Author: Sinikka Lee
Affiliation: Utah Valley University

Title: Finding Beauty in Balance and Cost: Analyzing the Evolution of Mobile Homes
Presenter: Hayden Fleming
Authors: Hayden Fleming, Brandon Ro
Affiliation: Utah Valley University

Title: Exploring Dance Reels as a Tool for Artistic and Professional Growth
Presenter: Melissa Long
Author: Melissa Long
Affiliation: Utah Tech University

Biological Sciences

Title: Mapping Zoological Baselines through Time in the Bear River Range: When Archaeology Meets Wildlife Science
Presenter: Auriana Dunn
Authors: Auriana Dunn[1,2], Dr. Kasey Cole[1,2,3], Dr. Austin Green[2,3], Dr. Tyler Faith[1,4], Dr. Randal Irmis[4,5]
Affiliations: [1]Department of Anthropology, University of Utah; [2]College of Science, University of Utah; [3]Science Research Initiative, University of Utah; [4]Natural History Museum of Utah; [5]Department of Geology and Geophysics, University of Utah

Title: Identifying cranial specimens of Utah species of *Lepus*
Presenter: Arianna Harrington
Authors: Arianna Harrington, Ethan Rowland
Affiliation: Southern Utah University

Title: Investigating the Role of mTOR-Akt Signaling in Retinotectal Arborization and ASD-like Behaviors in Zebrafish Exposed to Valproic Acid
Presenters: Norah Mead-Fajardo and Selafina Ngalu
Authors: Norah Mead-Fajardo, Sylvia Martinez, and Selafina Ngalu
Affiliation: Weber State University

Title: Comparison of Different Methods to Analyze the "Autistic" Zebrafish Transcriptome
Presenter: Marina Sidenko
Authors: Marina Sidenko and Jim Hutchins
Affiliation: Weber State University

Title: A look into frugivorous interactions with *Psychotria* and *Palicourea* genera on Barro Colorado Island, Panama
Presenter: Madison Smart
Authors: Noelle Beckman, Jerry Schneider, Elsa Jos, Madison Smart
Affiliation: Utah State University

Title: In the cold blood: prevalence of parasites in Utah's reptiles and amphibians species.
Presenter: Kyle Sparks
Authors: Kyle Sparks, Dr. Jonathan Marshall
Affiliation: Weber State University

Education

Title: The Effectiveness of Mastery Quizzes
Presenter: Willow Park and Caleb Hiller
Authors: Willow Park and Caleb Hiller
Affiliation: Southern Utah University

Title: A "Formula" for a Perfect Youth Soccer Story
Presenter: Faoiltiarna (Lilly) Schlenker, Cassidy Lamm, Halle Taylor, Whitney Blanchard
Authors: Faoiltiarna (Lilly) Schlenker, Cassidy Lamm, Halle Taylor, Whitney Blanchard
Affiliation: University of Utah

Engineering

Title: Ritual Sequence at the Byzantine Church Complex: Mapping Liturgy of the Word and Eucharist onto the Byzantine Church Complex at Horvat Beit Loya
Presenter: Emily Pederson
Authors: Emily Pederson, Brandon Ro
Affiliation: Utah Valley University

Humanities, Philosophy, and Foreign Language

Title: "Ethical Analysis of Discriminatory Restrictions of Euthanasia and PAS"
Presenter: Brielle Bratton
Authors: Brielle Bratton, Ben **Baumann, Maddison Griffin**
Affiliation: Snow College

Title: "Human Corpses and Consent"
Presenter: Miranda Slusser and Savanna Thompson
Authors: Miranda Slusser, Amy Sullivan, and Savanna Thompson
Affiliation: Snow College

Title: "Medical Miracles: Examining the Ethical Implications of Government Intervention"
Presenter: Kathrine Crouch
Authors: Joshua Cox, Hattie Stubbs, Kathrine Crouch
Affiliation: Snow College

Kinesiology and Health Sciences

Title: Eating Disorders: Treating the Underlying Mental Illness
Presenter: Darci Barker
Author: Darci Barker
Affiliation: Salt Lake Community College

Title: Neural Devices
Presenter: Kaleb Smith
Authors: Kaleb Smith, Olivia Malouf, Esther Simpson
Affiliation: Snow College

Title: Implementing Walk with a Doc at Weber State University
Presenter: Saori Hanaki
Authors: Saori Hanaki, Kelsey Hansen, Amber Palmer
Affiliation: Weber State University

Title: Exploring the Impact of Weber State University's Lifelong Learners Program on Physical Activity Among Elderly Students
Presenter**: Jeffery Kurt Ward**
Author: Jeffery Kurt Ward
Affiliation: Weber State University

Title: Physiological Effects of Pickleball and Skill Level

Presenter: Zachary Holt
Authors: Zachary Holt, James Zagrodnik, Ryan Zimmerman
Affiliation: Weber State University

Title: Elucidating the Roles of TOX and LRRC1 on Melanoma Cell Migration and Invasion
Presenter: Allison Stevens and Janellie Valmaceda
Authors: Allison Stevens, Janellie Valmaceda, Mya Gleed, Kingdom Wanjoku, Gennie Parkman
Affiliation: Weber State University

Physical Science

Title: Raman Imaging of Carbon Materials
Presenter: Seth Stringham
Authors: Seth Stringham, Dr. Dustin Shipp
Affiliation: Utah Valley University

Title: Indirect Detection of Dark Matter in Dwarf Spheroidal Galaxies
Presenter: J. Leonardo Yucra
Authors: Spencer Brickey, J. Leonardo Yucra, Jonathan Cornell
Affiliation: Weber State University

Title: A Pilot Study Investigating Virtual Reality for Chemical Education
Presenter: Kaden Jensen
Authors: Kaden Jensen, Matthew Prater
Affiliation: Southern Utah University

Title: Effects of Heavy Metal Uptake in the Growth and Development of Lactuca sativa L.
Presenter: Elise Johnson
Authors: Audrey O'Donnal, Riley Jackson, Braden Robinson
Affiliation: Utah Valley University

Title: Benefits of Utilizing the ACS manual throughout CHEM 1210
Presenter: Claire Neuberger and Fernanda Perez
Authors: Caleb Hiller, Claire Neuberger and Fernanda Perez
Affiliation: Southern Utah University

Social Sciences

Title: The Paradox of Protest: Political Dissatisfaction and Satisfaction with Democracy
Presenter: Kendra Pinegar
Author: Kendra Pinegar
Affiliation: Brigham Young University

Title: Gaps in Gun Safety: A Dual Lens Approach to Addressing Gun Safety in Utah through Policy and Community Action
Presenter: Kaisha McFall
Authors: K. McFall, B. Meglen
Affiliation: Utah Valley University

Title: Bridging the Gap: A Communication Privacy Management Approach to Student-Faculty Interaction in Higher Education
Authors: Sarah Steimel, Chloee Robison
Affiliation: Weber State University

Title: Perceived Financial Threat and Fear of Financial Crime
Presenter: Liz Homez Gonzalez
Authors: Heeuk Dennis Lee, David Kim, Liz Homez Gonzalez
Affiliation: Weber State University

Title: Temporal Discounting in Dating
Presenter: Rebecca Lake, Jayden Back, Annalee Howes, Sam Luker
Authors: Jayden Back, Rebecca Lake, Sam Luker, Annalee Howes, Nick Marsing
Affiliation: Snow College

Title: The Boo Factor: Comparing Emotional Reactions to AI-Generated vs. Human-Made Ghost Stories and Paranormal Experiences
Presenter: Alison Romero, Christopher Lowery
Authors: Alison Romero, Christopher Lowery, Emma Woods, Jade Ernst, Melissa Oman, Veronika Tait and Nick Marsing
Affiliation: Snow College

Crunching Numbers: The Effect of a Calculation Task on the Stress Response
Presenter: Ethan Garff
Authors: Kelsey Peterson, Isabella Hixon, Brecken Spencer, Ethan Garff, Kaitlyn Jensen, Shonda Ewell, and Dr. Claudia Jorgensen
Affiliation: Utah Valley University

Title: Generations Against Innocence
Presenter: Sarah Goodman
Authors: Sarah Goodman, Camden Jorgensen, Isaac Atkinson
Affiliation: Snow College

Title: High Concentrations of Air Pollution for Marginalized Groups in Salt Lake Valley
Presenter: McKay Jones
Authors: McKay Jones, Janessa- Michelle Purcell
Affiliation: Utah Valley University

Title: Gym Culture and Self-Perception
Presenter: Joshua Mullen
Authors: Joshua Mullen, Kimberly Jones, Adilen Yanez Maciel, Tom Hanson
Affiliation: Salt Lake Community College

Title: "Choice Overload: Post-decision Satisfaction Amoungst Online Daters"
Presenter: Janessa Dyches
Authors: Janessa Dyches, Taryn Williams, and Ozkar Jensen
Affiliation: Snow College

Oral Presentations
Clarke Building

Arts

Division Chair: Jim Godfrey
Utah Valley University

SESSION A: CB 307
Session Leader: Jim Godfrey

1:00 p.m.
Title: Bomba from Utah: Studying a Puerto Rican Folk music in a Modern Diasporic Context
Presenter: Drew Fallon
Author: Drew Fallon
Affiliation: University of Utah

1:15 p.m.
Title: Harmonious Inclusion: Exploring Accessibility in Musical Theatre for the Deaf and Blind Communities
Presenter: Audree Clark
Authors: Francesca Mintowt-Czyz and Audree Clark
Affiliation: Weber State University

1:30 p.m.
Title: The Choreography of Fear: Exploring the Societal Anxieties of "The Other"
Presenter: Abbie Simpson
Author: Abbie Simpson
Affiliation: Utah Valley University

1:45 p.m.
Title: Deciphering the "Jesus is Here" Cave: Early Christian Worship, Sacred Space, and Hierophany at Horvat Beit Loya
Presenter: Brandon Ro
Author: Brandon Ro
Affiliation: Utah Valley University

2:00 p.m.
Title: The Consequential Career of Francis Davis Millet
Presenter: Charlotte Poulton
Author: Charlotte Poulton
Affiliation: Utah Valley University

2:15
Title: The Body as Border in Laura Aguilar's Three Eagles Flying
Presenter: Amanda Platt-Allen
Author: Amanda Platt-Allen
Affiliation: University of Utah

2:30 p.m. **Break -** FL 100 Main Concourse/Fl 101 Bingham Gallery

3:00 p.m.
Title: Female Creators in Mexican Surrealism: The Psychological Effects of Exile on the Art of

Remedios Varo and Leonora Carrington
Presenter: Aubrey Gallafent
Authors: Aubrey Gallafent
Affiliation: Utah Valley University

3:15 p.m.
Title: The "Last Woman": Reimagining Female Apocalyptic Experiences in Threads (1984)
Presenter: Sophia Osburn
Author: Sophia Osburn
Affiliation: Brigham Young University

3:30 p.m.
Title: Marcel Duchamp and Rrose Selavy: Gender as Readymade
Presenter: Cameron Christensen
Author: Cameron Christensen
Affiliation: Utah Valley University

3:45 p.m.
Title: Gendered Sacrifice: The Impact of Site and Story at the 1785 Salon
Presenter: Elli Coupe
Author: Elli Coupe
Affiliation: University of Utah

4:00 p.m.
Title: Touching Loss: The Language of Hands in Käthe Kollwitz's Maternal Mourning
Presenter: Lily Greenwood
Author: Lily Greenwood
Affiliation: Utah Valley University

4:15 p.m.
Title: Touching Loss: Art Beyond Western Tradition: The Never Ending Influence of Taíno Art in the Dominican Republic
Presenter: Amanda Lowry Wiberg
Author: Amanda Lowry Wiberg
Affiliation: Southern Utah University

Biological Sciences

Division Chair: Daniel Clark
Weber State University

SESSION A: CB 412
Session Leader: Daniel Clark

1:00 p.m. Welcome

1:10 p.m.
Title: Temperature-Dependent Strategies for Dengue Control: Integrating *Wolbachia* and Natural Predators in a Mathematical Model
Presenter: Vinodh Kumar Chellamuthu
Author: Vinodh Kumar Chellamuthu

Affiliation: Utah Tech University

1:30 p.m.
Title: An examination of the chloroplast petD intron among eusporangiate ferns
Presenter: William Speer
Author: William Speer
Affiliation: Salt Lake Community College

1:50 p.m.
Title: Brain-eating Amoeba *Naegleria fowleri*: Drug inhibition in a human cell infection model
Presenter: Aspen Acuña
Authors: Aspen Acuña, Braden Freestone, Kody Korth, Victoria Green, Hannah Payne, Ethan Jensen, Daniel N. Clark
Affiliation: Weber State University

2:30 p.m. **Break -** FL 100 Main Concourse/Fl 101 Bingham Gallery

Business

Division Chair: Taowen Le
Weber State University

SESSION A: CB 404
Session Leader: Taowen Le

1:00 p.m. Welcome and Introduction

1:10 p.m.
Title: Undergraduate Business Student Attitudes towards General Education Classes
Presenter: Cash Schmutz
Authors: James C. Brau, Cash Schmutz
Affiliation: Brigham Young University

1:30 p.m.
Title: Undergraduate Student Attitudes Towards the Impact of AI on Future Business Careers
Presenter: Cash Schmutz
Authors: James C. Brau, Cash Schmutz
Affiliation: Brigham Young University

1:50 p.m.
Title: Desired Leadership Traits in First Bosses: A Study of Extant Leadership Theories
Presenter: Nathan Boekweg
Authors: Nathan Boekweg, James C. Brau, Jameson L. Brau
Affiliation: Brigham Young University

2:10 p.m.
Title: The Oyster is Your World: A Revised Look at International Diversification
Presenter: Robert Dubil
Author: Robert Dubil
Affiliation: University of Utah

2:30 p.m.
Title: Autonomous Annotations for Second-hand E-commerce Platforms using Generative Artificial Intelligence
Presenter: Taehyun Noh
Authors: Taehyun Noh, Jimin Go, Seokwoo Song
Affiliation: Weber State University

2:50 p.m.
Title: Cultivating Career Growth and Enhancing Workforce Resilience: The Role of Mentorship in Job Satisfaction and Engagement
Presenter: Wu-Ting Chen
Author: Wu-Ting Chen
Affiliation: Utah Valley University

3:10 p.m.
Title: Protecting the Mushroom Kingdom: A Case Study on Nintendo's Intellectual Property Regulation
Presenter: Hassan El-Cheikh
Author: Hassan El-Cheikh
Affiliation: Brigham Young University

3:30 p.m.
Title: Is TikTok Affecting the Mental Health of Your Employees? Examining the Link Between Compulsive TikTok Use and Mental Health.
Presenter: Jeffrey A. Clements
Author: Jeffrey A. Clements
Affiliation: Weber State University

3:50 p.m.
Title: Utah's Rising Property Tax and Income Tax Cuts
Presenter: Xiaoli Ortega
Author: Xiaoli Ortega
Affiliation: Utah Valley University

4:10 p.m.
Title: Long-Haul Trucking Firm Targets: An Empirical Analysis of the M & A Logistics Market
Presenter: James C. Brau
Authors: Gregory L. Adams, James C. Brau, Rebekah Inez Brau
Affiliation: Brigham Young University

4:30 p.m.
Title: Does Ethics or Diversity Training Impact Perceptions of Emerging Adults towards Corporate Social Responsibility Diversity Metrics: A Mixed Methods Analysis
Presenter: James C. Brau
Authors: James C. Brau, Jameson L. Brau, Sabrina D. Volpone
Affiliation: Brigham Young University, Gonzaga University, University of Colorado Boulder

4:50 p.m.
Title: Leverage Pays: an Analysis into Investing in Leveraged Exchange-Traded Funds (LETFs) Long-Term

Presenter: Ashton Call
Authors: Ashton Call, Todd Griffith, Asher Mitchell
Affiliation: Utah State University

Education

Division Chair Doug Stump
Southern Utah University

SESSION A: CB 416
Session Leader: Doug Stump

1:00 p.m.
Title: A "Formula" for a Perfect Youth Soccer Story
Presenter: Faoiltiarna (Lilly) Schlenker, Cassidy Lamm, Halle Taylor, Whitney Blanchard
Authors: Faoiltiarna (Lilly) Schlenker, Cassidy Lamm, Halle Taylor, Whitney Blanchard
Affiliation: University of Utah

1:20 p.m.
Title: Clicking to Connect: A Qualitative Study on How Personal Engagement with Professors Enhances Online Learning Outcomes
Presenter: Sana Shahid
Author: Sana Shahid
Affiliation: Utah State University

1:40 p.m.
Title: Living the Kodály Concept Beyond Elementary: An Historical Case Study of Rosalind Hall's Legacy in Secondary Choral Education
Presenter: Heather Christiansen
Author: Heather Christiansen
Affiliation: University of Utah

2:00 p.m.
Title: Transitions into Leadership: Peer Leadership Experiences of First Year Administrators.
Presenter**: Douglas Stump**
Author: Douglas Stump
Affiliation: Southern Utah University

2:30 p.m. **Break -** FL 100 Main Concourse/Fl 101 Bingham Gallery

Engineering

Division Chair: Ali Siahpush
Southern Utah University

SESSION A: CB 308
Session Leader: Ali S. Siahpush

1:00 p.m. Welcome

1:15 p.m.

Title: Launch and Analysis of High Altitude PICO Weather Balloon
Presenter: Raine Pratt, Sadie Schenk, Taylor Davis
Authors: Raine Pratt, Sadie Schenk, Taylor Davis, Ali Syyed Siahpush
Affiliation: Southern Utah University

1:30 p.m.
Title: Slab of Ice Melting Rate Due To Natural Convection and Thermal Radiation
Presenter: Tim Amodt
Authors: Tim Amodt, Ali Syyed Siahpush
Affiliation: Southern Utah University

1:45 p.m.
Title: Low-Cost Dual-Band Radar System for Drone Detection and Tracking with AI-Driven Target Prioritization
Presenter: Ahmed Amin
Author: Ahmed Amin
Affiliation: Southern Utah University

2:00 p.m.
Title: Heat Transfer Experiment: Top-Down Spray Type Direct Evaporative Cooler
Presenter: Erik Berthoty
Authors: Erik Berthoty, Ali Syyed Siahpush
Affiliation: Southern Utah University

2:15 p.m.
Title: Critical Radius of Insulation For a Cylindrical Copper Tube
Presenter: Taylor Davis, Raine Pratt, Brock May
Authors: Taylor Davis, Raine Pratt, Brock May, Ali Syyed Siahpush
Affiliation: Southern Utah University

2:30 p.m. **Break -** FL 100 Main Concourse/Fl 101 Bingham Gallery

3:00 p.m.
Title: Heat Transfer Analysis of Melting Rate of Ice In Clay and Paper Mixture Containers
Presenter: Kailee Richman
Authors: Kailee Richman, Ali Syyed Siahpush
Affiliation: Southern Utah University

3:15 p.m.
Title: Experimental Indirect Evaporative Cooling Fridge
Presenter: Lucas Hatch
Authors: Lucas Hatch, Ali Siahpush
Affiliation: Southern Utah University

Humanities, Philosophy, and Foreign Language

Division Chair: **Thomas C. Terry**
Utah State University

SESSION A: CB 417
Session Leader: Thomas Terry

1:00 p.m.
Title: “Beckett, McCarthy, and the Boundaries of Dystopia”
Presenter: David A. Hatch
Author: David A. Hatch
Affiliation: Southern Utah University

1:15 p.m.
Title: “John Wesley Powell, the Grand Canyon, and the Myth of Native Self-Imprisonment”
Presenter: Evan Mahler
Author: Evan Mahler
Affiliation: University of Utah

1:30 p.m.
Title: “Faith and Feeds: The Impact of Social Media on Voter Attitudes and Presidential Support in the USA”
Presenter: Aggrey Willis Otieno, Ph.D.
Author: Aggrey Willis Otieno, Ph.D.
Affiliation: Utah State University

1:45 p.m.
Title: “Unmasking and Taming the Social Media Mental Health Concerns Haunting Utah's Kids”
Presenter: Aggrey Willis Otieno, Ph.D.
Author: Aggrey Willis Otieno, Ph.D.
Affiliation: Utah State University

2:00 p.m.
Title: “Then I Remembered:’ Joan Didion on Grief: Minimalism and Phenomenology.”
Presenter: George Dibble
Author: George Dibble
Affiliation: Brigham Young University, student

2:15 p.m.
Title: “Race off the Agenda: The Visibility and then Invisibility of Black Americans in the Chicago Tribune in 1859 and 1952”
Presenter: Thomas C. Terry, Ph.D.
Author: Thomas C. Terry, Ph.D.
Affiliation: Utah State University

2:30 p.m. **Break -** FL FL 100 Main Concourse/Fl 101 Bingham Gallery

2:45 p.m.
Title: “Quality of Life on an 'Indian' Reservation: A Comparative Analysis of the Navajo Nation and General U.S. Population”
Presenter: Adam Nez
Author: Adam Nez
Affiliation: Snow College

3:00 p.m.
Title: “Forced Displacement and Assimilation: a Long-lasting Legacy for Native Communities”

Presenter: Emerson Hackford
Author: Emerson Hackford
Affiliation: Snow College

3:15 p.m.
Title: "From 'Abominable Snowman' to 'Yeti Anila:' Exploring Yeti Mythology Across Himalayan Cultures"
Presenter: Dawa Dechen Lama
Author: Dawa Dechen Lama
Affiliation: Snow College

3:30 p.m.
Title: "Across the Gulf: Land, Memory, and Identity in northern Guatemala and the US South"
Presenter: Fernando Nieto Montaño, Jr.
Author: Fernando Nieto Montaño, Jr.
Affiliation: Snow College

3:45 p.m.
Title: "Nights at the Museum: Agroforestry and Cultural and Ecological Patrimony in the Maya Biosphere Reserve of Northern Guatemala (a field report, in haibun style)"
Presenter: English Brooks, Ph.D**.**
Author: English Brooks, Ph.D.
Affiliation: Snow College

4:00 p.m.
Title: "A PEG Tube, Who Decides?"
Presenters: Kade Miller and Debbie Olsen
Authors: Kade Miller and Debbie Olsen
Affiliation: Snow College

Kinesiology & Health Sciences

Division Chair: **Tracy Fawns**
Utah Tech University

SESSION A: CB 414
Session Leader: Tracy Fawns

1:00 p.m.
Title: Gaps in Research on Women with Autoimmune Diseases
Presenter: Emma Smith
Author: Emma Smith
Affiliation: Utah Valley University

1:20 p.m.
Title: Smart Tools, Smarter Teaching: AI Challenges and Opportunities for Nursing Faculty and Academic Librarians
Presenter: Tavish Bell
Author: Tavish Bell
Affiliation: Utah Tech University

1:40 p.m.
Title: Musical (Department) Chairs: The Health Impacts of Serving as a Rotating Department Chair
Presenter: James Bemel
Author: James Bemel
Affiliation: Utah Valley University

2:00 p.m. Q & A/Discussion

2:30 p.m. **Break -** FL 100 Main Concourse/Fl 101 Bingham Gallery

3:20 p.m.
Title: Exploring the Impact of COVID-19 on Smoking Cessation: A Comprehensive Literature Review
Presenter: Linnette Wong
Author: Linnette Wong
Affiliation: Weber State University

Language-and Literature

Division Chair: Michael Taylor
Brigham Young University

SESSION A: CB 415
Session Leader: Keith Lawrence

1:00 p.m.
Title: Ethical Editing: Care Ethics in Technical Editing Pedagogy
Presenters: Rachel Bryson, Thabata Fay, Zabrina Le, Emmerson Martin, and Cora Romero
Authors: Rachel Bryson, Thabata Fay, Zabrina Le, Emmerson Martin, and Cora Romero
Affiliation: University of Utah

2:00 p.m. Q & A Discussion

2:30 p.m. **Break -** FL 100 Main Concourse/Fl 101 Bingham Gallery

3:00 p.m.
Title: To Every Fish a Fantasy: The Little Mermaid, Disability, and the Right to Love
Presenter: Miranda Slusser
Author: Miranda Slusser
Affiliation: Snow College

3:20 p.m.
Title: An Arrangement of Cogs: Speculative Form and Reality in Alan Moore and Dave Gibbons' "Watchmen"
Presenter**: Ezra Stein**
Author: Ezra Stein
Affiliation: Southern Utah University

3:40 p.m.
Title: "A Lotus Flower in the Mud": Woman as Dialectical Image in 19th-century Japan and

America
Presenter: Coleman Numbers
Author: Coleman Numbers
Affiliation: Brigham Young University

4:00 p.m. Q & A Session/Discussion

Physical Sciences

Division Chair: Maria Rodriquez
Utah State University

SESSION A: CB 315
Session Leader: Maria Rodriguez

1:00 p.m.
Title: High-Velocity Pulsar Kicks via Anisotropic Neutrino Emission
Presenter: Tate R. Thomas
Authors: Tate R. Thomas, Alexander M. Panin
Affiliation: Utah Valley University

1:20 p.m.
Title: Gravity Solutions in the Cloud: A Repository of General Relativity Computations
Presenter: Morgan Maxwell
Authors: Morgan Maxwell, Joseph Ray, Maria J. Rodriguez, Luis Fernando Temoche
Affiliation: Utah State University

1:40 p.m.
Title: Gravitational tidal deformations of rotating black holes
Presenter: Fernando Temoche
Authors: Glazer, Daniel; Joyce, Austin; Rodriguez, Maria J.; Santoni, Luca; Solomon, Adam R.; Temoche, Luis Fernando
Affiliation: Utah State University

2:00 p.m.
Title: How Much Quantum Confusion Does it Take to Catch an Eavesdropper
Presenter: Boaz Oswald
Authors: Boaz Oswald, Jean Francois Van Huele
Affiliation: Brigham Young University

2:30 p.m. **Break -** FL 100 Main Concourse/Fl 101 Bingham Gallery

3:00 p.m.
Title: Taphonomic, stratigraphic, and morphological analysis of hadrosauroids from the lower Wahweap Formation (early Campanian): insights into the early evolution and ecology of Hadrosauridae in North America
Presenter: Madison Watkins
Authors: Madison S. Watkins, Alan L. Titus, Katja Knoll, Bryce A. Cassiano, Joseph J.W. Sertich, Grant T. Shimer, Arianna Harrington
Affiliation: Southern Utah University

3:20 p.m.
Title: Revisiting Tidal Deformations in Black Holes
Presenter: Maria J Rodriguez
Authors: Maria J Rodriguez and Malcolm Perry
Affiliation: Utah State University

SESSION B: CB 317
Session Leader: Vern Hart

1:00 p.m.
Title: Metal Nanoparticles Synthesis with Biological Capping Ligands Facilitated by Microfluidic Devices
Presenter: Seth Wetjen, Samuel Hodnett
Authors: Seth Wetjen, Samuel Hodnett, Connor Cronin, Christopher Monson
Affiliation: Southern Utah University

1:20 p.m.
Title: Estimating Environmental Exposure with Uncensored and Censored data
Presenter: Sazib Hasan
Authors: Sazib Hasan
Affiliation: Utah Tech University

1:40 p.m.
Title: Quantifying Cadmium and Lead Concentrations in Cocoa Beans
Presenter: Lydia Felix
Authors: Hannah J. Verhaal, Lydia E. Felix, Harrison R. Yates, Charles F. Davidson, J. Andreas Lippert
Affiliation: Weber State University

2:00 p.m.
Title: Design and Performance Assessment of Butyl Norbornene Cross-Linked Anion Exchange Membranes for High-Efficiency Non-Aqueous Redox Flow Batteries
Presenter: Md Motiur R Mazumder
Author: Md Motiur R Mazumder
Affiliation: Utah Tech University

2:30 p.m. **Break -** FL 100 Main Concourse/Fl 101 Bingham Gallery

3:00 p.m.
Title: Microplastic Accumulation in Shoreline Sediments of the Ogden River System
Presenter: Kenley Stanger
Authors: Kenley Stanger, Davis Swanson
Affiliation: Weber State University

3:20 p.m.
Title: A stable numerical scheme for a Lengyel-Epstein reaction diffusion model
Presenter: Jianlong Han
Author: Jianlong Han
Affiliation: Southern Utah University

SESSION C: CB 312
Session Leader: TBA

1:00 p.m.
Title: A Device to Measure Ionic Strength in a High School Setting
Presenter: Abigail G. Petersen
Authors: Abigail G. Petersen, Lisa Monson, and **Christopher F. Monson**
Affiliation: Southern Utah University

1:20 p.m.
Title: Strain-Driven Metal-to-Insulator Transition and Ferroelectricity in WTe_2
Presenter: Ross Richins
Authors: Ross Richins, Shao Qiu
Affiliation: Southern Utah University

Social Sciences

Division Chair: **Emily Putnam**
Salt Lake Community College

SESSION A: CB 406
Session Leader: Emily Putnam

1:00 p.m.
Title: 'It's Not So Easy to Be Free': the Sounds of Protest in Folk Rock
Presenter: Theresa Martinez
Authors: Theresa Martinez
Affiliation: University of Utah

1:15 p.m.
Title: Why's the Water Gone?: The Treadmill of Production Through Global Water Scarcity
Presenter: Joshua Cafferty, PhD
Author: Joshua Cafferty, PhD
Affiliation: Utah Tech University

1:30 p.m.
Title: Students on the Margins: Investigating Student Belonging, Academic Success, Resilience, and Enrollment Intentions Among Marginalized Utah College Students
Presenter: Henry Greene
Authors: Sydney O'Shay, Amanda Lilly, Nicole Allen, Rachel Robison-Greene, Henry Greene, and Grace Pulsipher
Affiliation: Utah State University

1:45 p.m.
Title: Can the Socratic Method Revive Academic Integrity? A Comparative Analysis of Assessment Strategies among Professors and Students in Pakistan and the U.S.
Presenter: Dr. Sana Shahid
Authors: Dr. Sana Shahid
Affiliation: Utah State University

2:00 p.m.

Title: Navigating Motherhood and Fieldwork in Post-Conflict and Post-Genocide Contexts
Presenter Miriam Greene
Authors: Miriam Green, Dr. Stephanie Wolfe
Affiliation: Weber State University

2:15 p.m. Q&A

2:30 p.m. **Break -** FL 100 Main Concourse/Fl 101 Bingham Gallery

3:00 p.m.
Title: The Sacred Structures of Ogden's 25th Street
Presenter: Brittney Mast, Chelsea Raza, and Kasey Daniels
Authors: Brittney Mast, Chelsea Raza, and Kasey Daniels
Affiliation: Weber State University

3:15 p.m.
Title: Media Influence and Policy Response: The Impact of Media Coverage in International Human Rights Violations
Presenter: Macy McCormack
Author: Macy McCormack
Affiliation: Weber State University

3:30 p.m. Q & A/Discussion
3:45 p.m. Conclude

SESSION B: CB 409
Session Leader: Coco James

1:00 p.m.
Title: Investigating the Source and Veracity of Utah Stereotypes
Presenter: Rick Phillips
Authors: Ryan T. Cragun, Bethany Gull, Michael Nielsen, Rick Phillips, Jesse Smith,
Affiliation: Ryan T. Cragun, University of Tampa; Bethany Gull, Utah Tech University; Michael Nielsen, Georgia Southern University; Rick Phillips, University of North Florida; Jesse Smith, Western Michigan University

1:15 p.m.
Title: Wellbeing, justice, and experiential learning: A mixed methods study of a university campus garden
Presenter: Elisa Diaz
Authors: Elisa Diaz and CoCo James
Affiliation: University of Utah

1:30 p.m.
Title: Utah Lake: The Complex Origins of Shifting Baseline Syndrome
Presenter: Teri Harman
Author: Teri Harman
Affiliation: University of Utah

1:45 p.m.

Title: Demographic Survey of a Utah Street Tai Chi Program
Presenter: Sabrina Espinoza
Authors: Sabrina Espinoza, Kassidy Drage, Daniel Poole
Affiliation: Salt Lake Community College

2:00 p.m.
Title: Navigating Food Choices: A Qualitative Diabetes Camp Study
Presenter: Morgan Heelis and Echo Oliver
Authors: Morgan Heelis, Echo Oliver, Carla Cox, Eddie Hill, and Christina Aguilar
Affiliation: Weber State University

2:15 p.m. Q & A/Discussion

2:30 p.m. **Break -** FL 100 Main Concourse/Fl 101 Bingham Gallery

3:00 p.m.
Title: Infrastructure Discrimination in the Westside of Salt Lake City: A systems Mapping Approach
Presenter: Sebastian Trias, Morgan Aamodt, Hyrum Forstrom
Authors: Sebastian Trias, Morgan Aamodt, Hyrum Forstrom
Affiliation: Utah Valley University

3:15 p.m. Q & A/Discussion

3:45 p.m. Conclude

POSTER ABSTRACTS

Arts
Posters

Title: Escaping to Margaritaville: Exploring Escapism and Identity through Theatre
Author: Madisen Rayburn
Affiliation: Weber State University
Abstract: For centuries, theatre has provided a sense of escapism and self-exploration, allowing audiences and performers alike to step outside the constraints of everyday life and immerse themselves in stories that reflect, challenge, and reshape personal and collective identities. Musical theatre, in particular, offers a unique avenue for emotional connection, and self-reflection, allowing song and narrative to transport individuals into alternate realities. This research explores how escapism in Escape to Margaritaville; A Jimmy Buffet Musical, intersects with personal and collective identities, offering insights into the broader function of theatre as not only a means of entertainment, but also a temporary retreat from reality, and a means of internal reflection.
Through a hands-on assistant directing experience at the Pagosa Springs Center for the Arts, I was able to engage in creative collaboration while analyzing the show's themes, character development, and audience reception. Escape to Margaritaville, with its vibrant music and tropical setting, provides an ideal case study for examining how theatrical escapism operates on multiple levels—both within the story itself and in its impact on audiences. The musical's central themes of self-discovery, nostalgia, and the search for happiness, highlight the ways in which individuals use theatre to explore their own identities, aspirations, and emotional needs.

This presentation showcases key research findings, directorial contributions, and personal reflections on how Escape to Margaritaville portrays the human desire to escape, not just from daily routines but also from internal conflicts and societal expectations. By examining how audiences respond to the show's themes and immersive qualities, this research sheds light on the enduring power of musical theatre as both a source of joy and a vehicle for deeper self-exploration. Ultimately, Escape to Margaritaville serves as a compelling example of how theatre creates space for both temporary reprieve and lasting personal insight.

Title: Illuminating Motion: The Art of Dance and Light Synergy

Author: Anya Adib
Affiliation: Utah Tech University

Abstract:

Background

This presentation explores my creative research designed around the question: how can precise timing in lighting design transform dance performances, enhancing both visual effects and audience engagement? In this session, participants will gain insights into my choreographic research process, with a focus on how lighting became a central element in my creative work. I will show how lighting can influence movement dynamics and contribute to the overall impact of a dance.

Purpose

My curiosity was first sparked while dancing with my sister, observing how blinds let light come through and create captivating shadow effects. This inspired me to research light across two semesters, starting in my composition class and culminating into my senior capstone project. Thus, the purpose of this research was to experiment with dynamic dance movements and lighting interactions.

Methods

In my initial research, I discovered a lack of online resources and examples exploring the specific visual effects I was interested in. This revealed a gap and highlighted an underexplored area in dance and lighting. With the available resources, I drew inspiration from online sources such as David Parsons' "Caught" and other texts on lighting design. To pursue this, I conducted weekly rehearsals and collaborated closely with a lighting designer. Using my research, I sketched lighting concepts and refined them through practical experimentation, setting lights and cues to achieve the desired effects.

Findings/ Conclusions

My research revealed that lighting can be transformative in dance performance; it can alter the perception of movement and guide the audience's eyes. In sharing my findings, I want to showcase for participants how we can understand the relationship between lighting and dancers, as well as how we can push the boundaries of traditional stage dynamics. This approach opens new possibilities for storytelling and audience connection through the synergy of movement and light.

Title: Mind and Body, East and West Integration: Bartenieff Fundamentals and Laban Movement Analysis meets Manipura (Solar Plexus) Chakra

Author: Samantha Bickerstaff
Affiliation: Utah Valley University

Abstract: Human brains need frameworks and systems to make meaning from their experience. We need systems as tools (like language) to conceptualize and categorize ourselves, each other, our environments, and the relationships between. If two separate systems from different cultural lineages identify a similar pattern, their usefulness for meaning making is increased at their intersection. Yogic spiritual tradition posits a system of energy centers called Chakras along the

spinal column, each responsible for unique elements of the body and mind, so that each part is essential to the whole and a change in one part reflects a change to the whole. Similarly, Bartenieff Fundamentals, a somatic practice created by Irmgard Bartenieff, posits 6 Patterns of Total Body Connectivity (PTBCs) which develop sequentially, each contributing to the development of an integrated being. Irmgard's work was greatly influenced by Rudolph Van Laban's system of Movement Analysis, which distills movement into the categories of Space, Effort, Shape and Body. Each of these systems reflect physical and psychological elements and highlight their interconnectivity. My research synthesizes knowledge of body/mind integration from Eastern and Western frameworks, highlighting the similarities between the Yogic Chakra System, born in the East, and Bartenieff Fundamentals/Laban Movement Analysis, developed in the West. With focus on Upper-Lower body patterning from Bartenieff Fundamentals, Effort qualities from Laban Movement analysis, and the third Chakra (Manipura) from the Yogic spiritual tradition, I emphasize their complementary nature in hopes of providing dance educators and those interested in movement as a healing modality with another possible tool for creating efficient and expressive movement and promoting wholistic well-being.

Title: Textures of faith: the significance of textures in Hindu temples and how they can shape spiritual experiences.

Presenter: Beverly Cademis
Authors: Beverly Cademis and Brandon Ro
Affiliation: Utah Valley University

Abstract: This study will analyze the occupants' experiences with sacredness in Le Corbusier's La Tourette Monastery. The architectural style of the monastery is Brutalism, which is a style of building that emerged in the 1950s during the post-war era. The Oxford Dictionary defines it as "a style of architecture or art characterized by a deliberate plainness, crudity, or violence of imagery." In this research, we will examine whether the architectural qualities of the building encourage or deter spiritual reflection, contemplation, and emotional comfort. This research will make use of Julio Bermudez's database of extraordinary architectural experiences (or EAEs), together with users' qualitative data in the form of survey results of their experience with La Tourette Monastery provided by Professor Brandon Ro.

The results will be analyzed and characterized using the statistical software Jamovi. This research will reveal how the building's austere architecture affects the emotional and physical comfort of the occupants. We expect the results to show that the building provides a meaningful emotional and spiritual experience for visitors. The findings will add to discussions on architectural forms and religious/spiritual experiences. To further this research, the next step would be to conduct a survey of the people who reside there permanently to see if the experience remains the same.

Title: Empowering Collegiate Dancers: Navigating the Transition to Professional Dance Careers

Authors: Samantha Marx and Laurie Wilson
Affiliation: Utah Valley University

Abstract: Our research explores the challenges that collegiate dancers face when transitioning into professional dance careers upon graduation. Since the outbreak of the Coronavirus pandemic, much of the audition process required to enter a professional dance company has shifted to online formats. Many online requirements include classical and contemporary variations, partnering work, and ballet class technique footage. Additional requirements include professional headshots and dance photos, an updated CV or resume, and a letter of intent to company directors. While these changes have made it possible for dancers to audition for professional companies without having to travel to each company's location, they have also

made it difficult as dancers must navigate each of the online requirements in order to even be considered for an in-person call back. Our research is relevant to the field of ballet but also to current and future university students as this is new audition territory for dancers all over the country. By meticulously documenting our audition experiences at multiple companies (through in-person and online auditions) we aim to provide insights for current and future university students seeking a company position. Our goal in conducting this research is to help aid students in making the transition from earning their Bachelor of Fine Arts in dance to using that degree as a launching pad as they leave the collegiate world and enter the professional world of dance.

Title: Reconstructing the Past: Experiencing the Beit Loya Basilica through Virtual Visualization

Authors: Tyler Hansel, Brandon Ro
Affiliation: Utah Valley University

Abstract: This research project explores the intersection of historical reconstruction and modern visualization technologies by developing an immersive virtual reality (VR) experience of the Beit Loya Basilica. The project aims to refine an existing 3-Dimensional reconstruction of the Basilica through incorporation of accurate materials and refined environmental elements based on the structural and mosaic remains.

The project consists of three phases, beginning with an examination of contemporaneous architecture from the region in order to ensure accurate materials and details. Second, the model will be refined using the Twinmotion software. This includes adding materials and combining the point cloud data from the existing drone scans of the site's topography with the Basilica model to create an immersive digital environment. Lastly, 360-degree panoramic renders will be produced to allow users to experience the digital reconstruction as if they were there.

By combining architectural research, digital modeling, and VR technology, this project seeks to advance the role of digital tools in historical preservation and education. VR experiences are a growing development in these fields, and this digital reconstruction is the first of its kind for this site. In conclusion, this VR experience enhances engagement and understanding of ancient architecture, specifically the Beit Loya Basilica. This work contributes to the fields of architecture and preservation, demonstrating how VR can serve as a transformative medium for historical interpretation and public engagement with historical spaces that no longer fully exist.

Title: Evaluating Biomimetic Architecture Through Eye-Tracking Analysis

Authors: Dallin R. Hansen, Brandon Ro
Affiliation: Utah Valley University

Abstract: Biomimicry has long served as an essential framework in architecture, influencing design at both explicit and subtle levels. This research examines how biomimetic principles affect visual engagement through eye-tracking analysis, utilizing 3M VAS to assess human interaction with architectural forms. The study focuses on Beijing's Water Cube and Bird's Nest—two highly publicized examples of explicit biomimicry—contrasting them with Frank Lloyd Wright's Allen-Lambe House, a more restrained example of biomimicry that integrates organic principles into form and function without direct imitation.

Prior research in architectural perception suggests that organic design elements can influence wayfinding, attention retention, and emotional response, yet little work has directly compared explicit and abstract biomimicry using quantitative eye-tracking data. This study measures visual engagement with these contrasting approaches to evaluate whether literal biomimetic structures hold attention more effectively or if subtler applications foster a deeper, more sustained interaction.

The methodology involves eye-tracking simulations using 3M VAS to simulate and capture fixation duration, gaze distribution, and attention heatmaps. These results will provide empirical

evidence on whether overt biomimetic structures successfully engage users or if a more integrated, organic approach—such as that seen in Wright's Allen-Lambe House—proves more effective in maintaining visual interest. Findings from this study will contribute to the broader discourse on biomimicry's role in architectural design, offering insights that may inform future biomimetic research, urban planning, and the practical application of organic design principles.

Title: Monochrome vs. Color: How Architectural Color Choices Affect Visual Attention in Cayala, Guatemala

Authors: Juliana Martinez, Brandon Ro
Affiliation: Utah Valley University

Abstract: This research explores how cultural values influence the use of color in architecture by comparing the mostly white design of the City of Cayala in Guatemala to a more colorful design. Using the eye-tracking simulation, 3M VAS, this study will analyze which version captures more attention.

Color plays a significant role in how people experience architectural spaces. While most research focuses on how color affects interiors, few studies explore its influence on larger built environments.

Cayala's monochromatic aesthetic is inspired by classical architecture. However, Latin American cities often use vibrant colors that reflect their culture. By comparing these two approaches, this study looks at how different color choices affect how people visually engage with architecture.

This study compares Cayala's white design to a digitally modified version with added color. Architectural drawings of residential homes in Cayala will be studied, and a colorful version will be created for comparison. The study will use the AI-driven 3M VAS simulation to determine which version of the architectural drawing captures more attention.

It is predicted that the colorful version will attract more visual attention. This research will determine whether adding color increases visual engagement with architecture. This will provide insight into how color influences design and help make architecture more visually engaging for its audience.

Title: Form Follows Function? How Civic Architecture Speaks to the Public

Authors: Sadie Stutz, Davis McDermott, Brandon Ro
Affiliation: Utah Valley University

Abstract: American architect William Strickland stated, "Buildings of a public nature ought to express in their design the uses and purposes for which they are erected; so that when we behold a Church, Bank, Courthouse, Prison etc. we may understand them to be such from some external characters in the design without the aid of a painted sign or inscribed tablet." Observing a shift in style of civic architecture in the United States—from traditional to more contemporary forms—we seek to test Strickland's theory by examining how this change affects public perception of a building's purpose and function. A 2024 study by Brandon Ro and Hunter Huffman found that 72% of Americans prefer federal buildings with traditional architecture over modern designs. Our study seeks to determine whether the shift from traditional to contemporary civic architecture has affected the public's recognition of building function.

To test this relationship between form and function, we will conduct a public survey. Analyzing basic demographics such as age, gender, and occupation, participants will be shown twelve images of libraries, city halls, and high schools from various architectural styles across the United States. They will be asked to identify each building's function based solely on its form. This will test our hypothesis: whether the public can discern a building's function from its form. We will compare our results to a prior study that used AI eye-tracking software to analyze public perception of civic architecture using the same twelve images. We aim to identify relationships between architectural style—traditional or contemporary—and public recognition of civic

buildings. If traditional architecture is more recognizable, does this mean architects should favor classical styles, or conversely, is it a sign that public preferences are changing? We hope these insights will inform and inspire the design of future civic buildings in the United States.

Title: Celestial Blueprints: Indigenous Zodiac and Solar Alignments at Tiahuanaco
Authors: Kierstyn Dimas and Brandon Ro
Affiliation: Utah Valley University
Abstract: This study investigates the astronomical alignments of the UNESCO World Heritage Site of Tiahuanaco in Bolivia, examining how indigenous celestial knowledge impacts architectural orientation and design. While previous research has documented solar alignments at the site, local zodiac constellations remain understudied, revealing a significant gap in our understanding in Andean archaeoastronomy. This research explores how the builders of Tiahuanaco used both solar alignments and Bolivian zodiac constellations in their design of the Kalasasaya and Akapana structures, potentially revealing sophisticated knowledge of astronomy that shaped religious architecture.
The methodology employs archaeoastronomical analysis and is done using Google Earth and Stellarium software to map celestial alignments, which will then be compared to existing scholarship. Building on the solar orientation studies of Protzen and Browman, this research incorporates local astronomical knowledge documented by regional astronomer Manuel De La Torre, whose work on indigenous zodiac constellations, while not widely known internationally, provides valuable insights into local astronomical traditions. Statistical analysis will be employed to distinguish intentional alignments from coincidental ones.
The results of this study could demonstrate that Tiahuanaco's builders had a complex understanding of celestial mechanics and knew how to align their structures with major celestial events and constellations. Learning this could impact how we think about the site of Tiahuanaco and the people who built it. This could also contribute to broader discussions about astronomy and its influence on ancient architectural and religious practices across the Americas.
*Disclaimer: AI technology was used to help edit this abstract (spelling/grammar).

Title: Evaluating Educational Environments: Insights from Post-Occupancy Evaluations of School Buildings
Authors: Alexandra Elizabeth Mackenna, Brandon Ro
Affiliation: Utah Valley University
Abstract: This research explores the impact of architectural design on educational environments through Post-Occupation Evaluations (POE) of school buildings. It focuses on how elements such as natural and electrical lighting, classroom flexibility, temperature, air quality, and acoustic design influence student engagement and performance in elementary schools. It investigates which architectural elements enhance student engagement and teacher satisfaction.
Recent studies indicate that well-designed educational spaces can substantially influence academic performance, engagement levels, and overall well-being of students and staff. For instance, Barrett et al. (2015) found that classroom design elements such as light, temperature, and spatial configurations can affect academic progress by up to 16%. Additionally, Herman Herzberger's theories on educational space further explore the practical implications of architectural flexibility in learning environments. Furthermore, the study "Understanding the Impact of School Design on Academic Performance" from Butler Elementary provides essential insights into how flexible, student-centered learning environments significantly enhance educational outcomes.
Using a comparative case study approach, this study analyzes POEs from Butler and Odyssey Elementary Schools, collecting qualitative and quantitative data to assess the impact of architectural elements on educational outcomes. Metrics analyzed will include student learning

experience, acoustic comfort, and spatial adaptability, with statistical analysis providing a robust comparison across the case studies.
Initial findings suggest that flexible learning spaces, natural lighting, and integration of technology play crucial roles in enhancing educational experiences. These insights are expected to contribute to the design of future educational facilities by emphasizing features that align with modern pedagogical needs. While the findings advocate for integrating flexible learning spaces and natural lighting, challenges such as budget constraints and regional architectural norms may affect the implementation of these recommendations. This study contributes to the architectural field by offering evidence-based design recommendations and helps stakeholders understand the long-term impacts of school design on educational outcomes.

Title: Il Duomo Unveiled: The Role of Architecture in Shaping Extraordinary Experiences at the Cathedral of Santa Maria del Fiore
Authors: Levi Parry, Brandon Ro
Affiliation: Utah Valley University
Abstract: The Cathedral of Santa Maria del Fiore, also known as Il Duomo is famous for its captivating architecture and spiritual significance. Using survey data collected by Dr. Julio Bermudez, president of the Architecture, Culture, and Spirituality Forum, this study aims at exploring the phenomenon of Extraordinary Architectural Experiences (EAEs) through analysis of patterns in demographic variables, descriptive accounts, and emotional responses in the statistical analysis software Jamovi. This is done to answer a central research question: which architectural elements of Il Duomo play a role in EAEs, and how do they affect visitor perception across multiple demographics?
Findings indicate that the women who participated in the survey tended to have stronger emotional and physical reactions, such as weeping, to the grandeur of the cathedral while men engaged with the space in a more analytical, yet still deeply emotional manner. Additionally, those aged 25-40 reported the most intense experiences. Participants highlighted specific elements in their accounts, such as the intricacy design, the vastness of the space, the musical ambience, and the interactive journey through the dome's inner structure played significant roles in the EAEs. Studies conducted by Julio Bermudes and Brandon Ro suggest that similar elements in other iconic structures, such as the Pantheon, Chartres Cathedral, and Ronchamp Chapel evoked similar EAEs.
Future research should expand to a large and more diverse participant pool. This study was based on data from seven participants, all of whom had architectural backgrounds, which may have influenced their perceptions. Including a broader range of individuals—especially those without prior exposure to architectural studies—would enhance understanding of how different backgrounds shape this type of emotional experience. Additionally, such research could inform architects in designing spaces that lead to similar spiritual and transformative experiences.

Title: A Comparative Analysis of Two Gothic Cathedrals Separated by Space and Time
Author: Sinikka Lee
Affiliation: Utah Valley University
Abstract: Through the process of drawing an analytique layout after the Beaux-Arts style, this analysis compares the composition of two distinct Gothic churches, searching for architectural similarities, exploring the idea that styles can remain relevant through time and space. These buildings were chosen for their similar Gothic styles and differing constructive expressions, times and locations. I expect to find comparative similarities, which would suggest that traditional designs can remain relevant despite changing cultures, times, and spaces. The Orvieto Chapel in Italy, built in the Gothic period, is renowned for its frescoes and highly decorative detailing, featuring mosaics and ornament made of marble, gold and bronze. Alternately,

Grundtvig's Church in Denmark, constructed in the early 20th century, embodies a simplified, modern expression of Gothic Architecture, relying solely on yellow bricks for its more simplified, yet calculated construction. Both structures leverage monumental scale, bold geometry, and the power of light, to evoke a sense of awe and divine presence. The exterior facades reveal similar massing when compared side by side, sharing similar hierarchies, rhythms, angles, positioning of details, with major angled elements converging at the same point. The roots of the designs are very similar, though their expressions are comparatively distinct. A geometric analysis revealed a common relationship of $1:\sqrt[3]{}$ is used extensively throughout both building's designs. The repetitive use of the cube root unifies the designs, and can symbolize wholeness, perfection, and divinity, properly fitting the context. Limitations exist in the analysis due to drawings being based on photographs rather than measurements, though great efforts were made to represent the building's massing accurately. Through a visual analysis of these distinct buildings, connections were found at the roots of their designs, which reinforces the notion that architectural thought finds continuity and relevance across centuries, cultures, and styles through the bridge of human experience.

Title: Finding Beauty in Balance and Cost: Analyzing the Evolution of Mobile Homes
Authors: Hayden Fleming, Brandon Ro
Affiliation: Utah Valley University
Abstract: Affordable housing: a problem we have been combatting for years. A hundred years ago, the shotgun home was the solution, a simple room-to-room rectangular structure. This form eventually evolved into the mobile home. While mobile homes are affordable, they create unwelcome environments due to their lack of visual appeal. By studying the aesthetic evolution from the shotgun to mobile, I aim to use the findings towards designing a solution where affordability and beauty are met, creating a happier, more architecturally cohesive piece of society.
The research involved using eye-tracking technology (3M Visual Attention Software) to analyze where the visual attention is focused on two traditional shotgun homes and two mobile homes. To eliminate distractions and bring focus to the homes' architecture, the images were rendered into pen drawings. This comparative analysis revealed which architectural elements captured visual interest and which were overlooked. The results informed the design of a new mobile home to see if a different design could hold more attention.
The software showed that while the mobile homes were successful in grabbing the eyes' attention at the point of entry, they failed to retain attention outside of that area. While the shotgun homes weren't the first to grab attention, shotgun 1 proved to have on average more visual attention than the mobile homes. Once the design was added, it dominated attention across all fields with an average visual attention score of 84.5% compared to the next largest score of 54%.
By studying past and present forms, a more visually appealing mobile home can be achieved. While the proposed design would increase the cost, it would remain much more affordable than any regular home, proving that beauty and affordability can be balanced.

Title: Exploring Dance Reels as a Tool for Artistic and Professional Growth
Author: Melissa Long
Affiliation: Utah Tech University
Abstract:
Background
This presentation shares my creative research exploring digital reels. As digital submissions become a key hiring tool, reels must effectively convey movement quality, teaching style, and artistic identity. A dance reel is a short, edited video showcasing a dancer's skills, technique, and

artistic vision. Typically 2-5 minutes long, it serves as a visual resume for auditions, job applications, and networking.

Purpose

My research explores how to share my artistry through both visuals and narrative, using my reel to translate my choreographic process and teaching philosophy into a digital format. Through movement, interviews, and editing, I aimed to communicate not just technique but the deeper intention behind my work, making my artistic voice accessible beyond live performance.

Methods

My initial research with digital reels began with my dance piece in my university's Student Dance Concert. This project allowed me to explore film as a platform for articulating my creative process. Now, I am expanding my research by creating both a teaching reel and a choreography reel. I followed five key phases:

- Preparation: Exploring how to present creativity in a digital format.
- Building: Filming rehearsals, interviews, and moments of me directing dancers.
- Editing: Structuring footage for clarity and impact. Feedback: Evaluating how my reel is perceived by peers and professionals.
- Sharing: Presenting the reel professionally.

Findings/Conclusions

Authenticity is key— reels should reflect an artist's true style. Short, structured clips are more effective than long, unedited footage. Teaching reels benefit from voiceovers or subtitles explaining methods. Professional lighting and framing enhance movement quality. When I began creating my reels, I realized the importance of balancing clarity with creativity to authentically represent my movement and teaching style. Future Implications I will continue refining how my artistry is conveyed through film and use these reels for job applications and networking.

Biological Sciences
Posters

Title: Mapping Zoological Baselines through Time in the Bear River Range: When Archaeology Meets Wildlife Science

Authors: Auriana Dunn[1,2], Dr. Kasey Cole[1,2,3], Dr. Austin Green[2,3], Dr. Tyler Faith[1,4], Dr. Randal Irmis[4,5]

Affiliations: [1]Department of Anthropology, University of Utah; [2]College of Science, University of Utah; [3]Science Research Initiative, University of Utah; [4]Natural History Museum of Utah; [5]Department of Geology and Geophysics, University of Utah

Abstract: Zoological baselines are key data sets when evaluating climate issues and wildlife conservation projects. This project looks at three types of ecological surveys in the Bear River Basin. 1) A zooarchaeological survey of two cave assemblages, 2) modern camera trap data, and 3) modern museum live trapping surveys. The first survey, using cave assemblages of animal skeleton remains, included remains from Boomerang Cave and Thundershower Cave, in the Bear River Range of Cache County in northern Utah. There were 1,938 specimens analyzed between the two caves. These deposits showed a distribution of species class size expected from known species diversities, and most of the mammalian diversity expected in the area. The other two surveys, camera trapping and live trapping, both bias certain size classes over others. When analyzing the data sets together using machine learning techniques, a zoological baseline can be created for the paleontological and modern Bear River Range. This information then can be analyzed in relation to climate issues and wildlife conservation, to see if and how the baseline has changed over time.

Title: Identifying cranial specimens of Utah species of *Lepus*

Authors: Arianna Harrington, Ethan Rowland
Affiliation: Southern Utah University
Abstract: Three species of *Lepus* (Mammalia, Lagomorpha, *Leporidae*) are native to Utah: *L. americanus* (snowshoe hare), *L. californicus* (black-tailed jackrabbit), and *L. townsendii* (white-tailed jackrabbit). While live specimens are easily identified based on external characteristics and habitat preferences, skulls of leporids show relatively little variation within the family, making their identification challenging in isolation of other specimen information. This is particularly true for the skulls of *L. californicus* and *L. townsendii*, which show broad overlap in basic cranial metrics including greatest skull length. To further study the differences between the cranial anatomy of these three species, cranial measurements were collected from n=38 *L. americanus*, n=130 *L. californicus*, and n=118 *L. townsendii* specimens housed in the mammalogy collections of the Natural History Museum of Utah, University of Colorado Museum of Natural History, and Denver Museum of Nature and Science. Crania of *L. americanus* were distinguished from those of *L. californicus* and *L. townsendii* by having a shorter greatest length from the inion to the anterior surface of the first incisors ($p<0.0001$). To characterize differences between *L. californicus* and *L. townsendii* specimens, a linear discriminant analysis (LDA) was performed using 15 commonly preserved cranial measurements as a predictor of species identity. Measurements that explained the highest variance in the model included those that characterized the dimensions of the rostrum and basicranium. A jackknifed validation was performed to evaluate the LDA and resulted in 95% accuracy. These results suggests that LDA of cranial metrics may be used to distinguish crania of *L. californicus* and *L. townsendii* with a high degree of accuracy. Potential applications include identifying cranial material of these species in poorly documented specimen collections or in zooarchaeological contexts where there is range overlap of these species.

Title: Investigating the Role of mTOR-Akt Signaling in Retinotectal Arborization and ASD-like Behaviors in Zebrafish Exposed to Valproic Acid

Authors: Norah Mead-Fajardo, Sylvia Martinez, and Selafina Ngalu
Affiliation: Weber State University
Abstract: Autism spectrum disorder (ASD) is a neurodevelopmental condition associated with social interaction deficits, repetitive behaviors, and communication challenges. An environmental factor that is linked to ASD is prenatal exposure to valproic acid (VPA). VPA is a medication that is commonly used to treat epilepsy and mood disorders. Exposure to VPA during early brain development has been shown to increase the risk of ASD. However, the molecular mechanisms behind this are not well understood. This project aims to investigate the role of the mTOR-Akt signaling pathway in ASD-like behaviors using a zebrafish model that has been exposed to VPA. Our primary focus is on retinotectal arborization, which is a process of synaptic pruning essential for proper brain wiring during development. Zebrafish offer an ideal model due to their transparent embryos and rapid development. This allows for direct observation of neural structures. Due to difficulty seeing the tectum, we will employ the FlyClear protocol to remove pigmentation from the zebrafish larvae. This will ensure clear imaging of the brain. Embryos will be treated with VPA from 0-48 hours post-fertilization, and the development of retinotectal arbors will be analyzed using a confocal microscope. We will also explore the effects of rapamycin, which is an inhibitor of the mTOR pathway, to determine if it can reverse VPA-induced neural and behavioral abnormalities. By examining the role of mTOR and Akt in ASD-like behaviors, this research aims to improve understanding of the molecular mechanisms involved in ASD and evaluate potential therapeutic strategies.

Title: Comparison of Different Methods to Analyze the "Autistic" Zebrafish Transcriptome

Authors: Marina Sidenko and Jim Hutchins
Affiliation: Weber State University
Abstract: Autism Spectrum Disorder (ASD) is recognized as a "different wiringâ€□ of the brain, leading to challenges with social interactions, rapid behavioral changes, and repetitive interests. While there is not one gene or environmental factor solely responsible for ASD, one current hypothesis is that there is a failure of weak synaptic contacts to be pruned and therefore an overproduction of synapses relative to the neurotypical brain. The hyperactivation of specific intracellular pathways that help synapses avoid pruning, such as mTOR and Akt, may tilt the developing brain toward the ASD phenotype.
We are studying the possible overproduction of synapses between the ganglion cells of the retina and the optic tectum using zebrafish (*Danio rerio*) as a model of ASD. In this model, zebrafish are treated with valproic acid (VPA). VPA is a commonly used drug in the treatment of bipolar disorders, epilepsy, and schizophrenia. ASD characteristics have been found in children born to mothers who consume VPA during pregnancy.
Using zebrafish treated with valproic acid, we aim to quantify the levels of gene expression among key genes involved in the formation and pruning of synapses. Here, we compare quantitative RT-PCR, gene arrays, and RNA sequencing as three potential approaches that can yield the necessary results, with each method offering distinct strengths and weaknesses.

Title: A look into frugivorous interactions with *Psychotria* and *Palicourea* genera on Barro Colorado Island, Panama
Authors: Noelle Beckman, Jerry Schneider, Elsa Jos, Madison Smart
Affiliation: Utah State University
Abstract: Seed dispersal is a vital ecological process that influences plant population dynamics and ecosystem structure. Many plants rely on frugivorous animals to disperse their seeds. This study examines the interactions between frugivorous birds and fruiting plants of the *Psychotria* and *Palicourea* genera on Barro Colorado Island, Panama. Specifically, we investigate the preferences and interaction levels of avian seed dispersers with these plant species. Data were collected using camera traps located near fruiting plants, capturing interactions categorized by levels of engagement. Preliminary results indicate that red-capped manakins and keel-billed toucans had the highest interaction levels with certain *Palicourea* species, with red-capped manakins being the only species to remove fruit from all observed plant species. Further data analysis is ongoing to quantify interaction scores and summarize trends. This research contributes to understanding the ecological relationships between frugivores and plants, with implications for seed dispersal effectiveness and tropical forest dynamics.

Title: In the cold blood: prevalence of parasites in Utah's reptiles and amphibians species.
Authors: Kyle Sparks, Dr. Jonathan Marshall
Affiliation: Weber State University
Abstract: Interactions between hosts and parasites are complex, and involve an interplay of environmental conditions, genetic diversity, and length of time of association. For reptiles, ticks and mites are some of the most common ectoparasites. Ticks and mites are final hosts and vectors for haemogregarines, a common unicellular parasite found in red blood cells. In this study, we surveyed several reptile and amphibian species in Utah to understand differences in parasite loads between native versus invasive species, and between species that use sexual or asexual reproduction. We captured specimens over a span of four months (May to September 2024). Reptiles and amphibians were captured by hand. We recorded the species, the location and elevation, and its snout to vent length. We then took a small piece of its tail or toe, and from the cut did a blood smear, for microscope analysis. Results are still ongoing as several possible

positive results await molecular confirmation, bringing to question what species in Utah could carry the parasite.

Education
Posters

Title: The Effectiveness of Mastery Quizzes
Authors: Willow Park and Caleb Hiller
Affiliation: Southern Utah University
Abstract: Success rates of introductory chemistry classes remain a challenge in many academic institutions. In this study, we introduce the concept of midterm quizzes as a supplementary tool to aid students in mastering challenging topics before exams. These quizzes, implemented in the days leading up to exams, allowed for multiple attempts with the best score retained. Various question pools ensured comprehensive coverage of course material. To incentivize participation, a percentage of the exam score was tied to performance on these quizzes. Comparison of classes with and without midterm quizzes revealed significant improvements in exam scores. Student feedback indicated perceived benefits in exam preparation and overall course performance. This study underscores the efficacy of midterm quizzes in enhancing student success in introductory chemistry courses. There is the potential to expand it out to other disciplines as well.

Title: A "Formula" for a Perfect Youth Soccer Story
Authors: Faoiltiarna (Lilly) Schlenker, Cassidy Lamm, Halle Taylor, Whitney Blanchard
Affiliation: University of Utah
Abstract: A rise of interest in sports-related youth literature in the United States is pushing educators to seek out increasingly more sports stories for their libraries. One sport in particular gaining recent national popularity is soccer, and thus soccer-related literature is also increasingly popular. However, many of these soccer stories are memoirs or biographies by and about well-known athletes and retell their journeys as players. This style of book can often be more difficult, and potentially too didactic, for young readers who may be newer to both reading and soccer. In this study, we examined fictional stories that potentially combine the authenticity of true soccer with the excitement and reading level of the middle-grades.
We examined the in-print young adult literature where soccer plays an integral role to the plot. Using our pre-designed and pilot-tested codebook and codes, we began by recording trends in elements such as plot, settings, and themes. We considered character traits related to gender, ethnic, and socio-economic diversity, and went beyond to examine positions played, skill level in soccer, attitudes towards soccer, and relationships between characters. We further recorded the amount and types of "soccer" present in each title, from informal play to practices and games to simply talking about soccer.
Thus, this content analysis provides a unique and accurate lens into the current state of youth soccer literature, considering the intersectionality of identities and elements of the sport itself leading to a stronger understanding of current middle-grades sports literature in general.

Engineering
Poster

Title: Ritual Sequence at the Byzantine Church Complex: Mapping Liturgy of the Word and Eucharist onto the Byzantine Church Complex at Horvat Beit Loya
Authors: Emily Pederson, Brandon Ro
Affiliation: Utah Valley University
Abstract: This research explores the spatial and ritual relationship between liturgical practices

and architectural evolution within the Byzantine church complex at Horvat Beit Loya. Specifically, it seeks to map the sequence of the Liturgy of the Word and the Eucharist onto the church's evolving floor plan, focusing on two key construction phases: Phase 1 and Phase 2. Analyzing archaeological evidence, historical texts, and architectural analysis, has informed the results of reconstructing how ritual movements were shaped by and influenced the spatial configuration of the church.

While previous research has explored Byzantine church architecture and liturgical tradition, limited research has directly mapped ritual practices onto evolving floor plans. This study addresses that gap by synthesizing historical liturgical sources with architectural and archaeological findings. In particular, it considers how architectural modifications—such as the addition of the north chapel in Phase 2—may reflect evolving liturgical needs.

Methodologically, this study employs a comparative and inductive approach, integrating primary textual analysis of early Christian Fathers with archaeological site data. Floor plan analysis of Phases 1 and 2 will help map ritual sequences, identifying key architectural elements like the nave, apse, and ambulatories as central to liturgical movements.

Expected results include a ritual map of both the Liturgy of the Word and the Eucharist rituals on the Beit Loya church complex's floor plan. Additionally, results may include a clearer understanding of how sacred architecture facilitated ritual practices and how modifications reflected theological or liturgical shifts. This research contributes to architectural history, Byzantine religious studies, and the broader discourse on how space and ritual interact to shape sacred experiences in historical Christian worship.

Humanities Philosophy and Foreign Language
Poster

Title: "Ethical Analysis of Discriminatory Restrictions of Euthanasia and PAS"

Authors: Brielle Bratton, Ben Baumann, Maddison Griffin
Affiliation: Snow College

Abstract: We have been tasked with creating an ethical analysis regarding the discriminatory factors concerning physician assisted suicide and euthanasia laws. Specifically the 75+ age restriction mentioned in the proposed D66 from The Netherlands.

The methods of research we will be conducting include but are not limited to: being given the opportunity to go to Rome, Italy to talk to scholars and ethicists in the Vatican who are leading experts in their field of end of life care and the ethical dilemmas surrounding it. We will also be meeting with Nobel prize winners to discuss our research. We have also done research online through scholarly articles written by the scholars we will be meeting with in Rome. As well as research done through worldly scholarly organizations online. We have learned through our professor different ethical views that have broadened our scope of understanding of bioethical philosophy for this topic as well.

Our main question regarding our research is "How we can avoid and have the ability to define discriminatory factors in euthanasia laws?"

Title: "Human Corpses and Consent"

Authors: Miranda Slusser, Amy Sullivan, and Savanna Thompson
Affiliation: Snow College

Abstract: A research group, consisting of three students of Philosophy 2050 at Snow College led by Dr. Gregory Wright, must complete the primary assignment of a semester-long research project, culminating in a written report and a live presentation given to peers, professors, Snow College students and faculty, and the Utah Academy of Science, Arts, and Letters (UASAL). The research group will work together to research and address numerous questions consisting of

ethical dilemmas surrounding the use and treatment of human corpses, especially as concerning the Body Worlds exhibit, to offer real-world recommendations to the stakeholders related to the case. The project began on January 8, 2025, and the initial draft of the written report was submitted to the professor for review on January 31, 2025. The student committee will be traveling to Rome, Italy, on February 28, 2025, to March 9, 2025, to conduct further research, including the opportunity to interview world-renowned experts in ethics, to gain further insights through their expertise to incorporate in the research and recommendations presented. The initial presentation is scheduled on March 7, 2025, while abroad, and will be given to a body of peers, professors, and experts in the field of ethics. There will be the opportunity to engage in questions and answers toward the end of the presentation, where the valuable feedback received will contribute further to the research. With the research conducted in Rome and the feedback received after their initial presentation while there, the research group will further edit and refine their presentation and report, in preparation of presenting to the UASAL Conference held on March 22, 2025. With the knowledge gained through engagement after the second presentation, the group will revise and edit their written report, which is due to be completed and submitted by April 25, 2025.

Title: "Medical Miracles: Examining the Ethical Implications of Government Intervention"
Authors: Joshua Cox, Hattie Stubbs, Kathrine Crouch
Affiliation: Snow College
Abstract: Utah's Health and Human Services Committee, which is filled with members from the Senate and the House of Representatives, are reviewing laws that deal with parents and their rights in their children's medical care. Specifically, parents refusing life-saving medical attention for their children and choosing to hope for a miracle. While this type of situation is not common, it has occurred multiple times. In this thought experiment, assume that the Utah Health and Human Services Committee has tasked our bioethics team to review and analyze current laws and provide our thoughts and suggestions for new laws.
After an initial review of the case, we believe that it is the duty of the State to preserve the health, wellness, and/or life of a child— even if it is against the wishes of the legal guardian with or without religious reasons— when medical intervention would beyond a reasonable doubt improve the minor's condition. In the case where competent medical professionals agree that the odds of success are low, the rights of the guardians are upheld fully; they are to make a decision for their child's care. Given this, we recommend the state provide general education for the guardians regarding medical procedures prior to the guardian's decision going into effect.

Kinesiology and Health Sciences
Posters

Title: Eating Disorders: Treating the Underlying Mental Illness
Author: Darci Barker
Affiliation: Salt Lake Community College
Abstract: Eating disorders rates have increased by affecting or potentially affecting 28.8 million Americans. The wide ranges of eating disorders, for example, Anorexia Nervosa, Bulimia Nervosa, Binge Eating Disorder (BED), or Avoidant Restrictive Food Intake Disorder (ARFID), can be treated in various ways, including psychotherapy, medical care/ monitoring, nutrition counseling and medications. Findings show Cognitive Behavioral Therapy (CBT) and Interpersonal Psychotherapy (IPT) to be the most effective. With exception for other forms of eating disorders. Residential treatment for severe cases has also been found to be more beneficial than program treatment. Furthermore, underlying mental illnesses, such as OCD, anxiety, or

depression, often contribute to the development of eating disorders. By addressing these mental health conditions, rather than the eating disorder itself, patients can experience better long-term recovery outcomes. Taking this integrated approach by focusing on mental health while continuing to target eating disorders like CBT and residential care yields the best outcomes for recovery.

Title: Neural Devices
Authors: Kaleb Smith, Olivia Malouf, Esther Simpson
Affiliation: Snow College
Abstract: Should the FDA evaluate the ethics of neuro-implantable devices for functional recovery before granting approval? If so, at what point in the process? This report examines these questions by exploring the broader implications of this technology.

Title: Implementing Walk with a Doc at Weber State University
Authors: Saori Hanaki, Kelsey Hansen, Amber Palmer
Affiliation: Weber State University
Abstract: Despite the recommendation to exercise for improved health and disease prevention, many people do not comply. Suggested barriers to exercise have included low energy, lack of motivation, education, time and confidence among others. Suggested motivators to exercise have included social groups, a partner to exercise with, and verbal communication from a healthcare provider. As a solution to the problem, we have planned to implement a successful Walk with a Doc (WWAD) program at Weber State University.

Title: Exploring the Impact of Weber State University's Lifelong Learners Program on Physical Activity Among Elderly Students
Author: Jeffery Kurt Ward
Affiliation: Weber State University
Abstract: This qualitative study explores the impact of Weber State University's Lifelong Learners Program (LLP) on the physical activity levels, motivations, and social engagement of older adults. Using a phenomenological case study approach, semi-structured interviews were conducted with LLP participants aged 62 and older. The study aimed to understand how program participation influences exercise habits, supports adaptation to age-related physical changes, and fosters social connections.

Title: Physiological Effects of Pickleball and Skill Level
Authors: Zachary Holt, James Zagrodnik, Ryan Zimmerman
Affiliation: Weber State University
Abstract: The Sports & Fitness Industry Association announced pickleball as the fastest growing sport in the U.S. the last 3 years, with an 185% increase over this timespan. To date only two studies have been conducted on the game and its impact on peoples' health and physiological changes. It is unknown if different skill levels of pickleball players respond physiologically differently during game play. The purpose of the current study was to identify the physiological effects of pickleball based on skill level. To date, 191 recreational pickleball players have participated in this study. Each participant wore a Hexoskin biometric shirt during play, which continuously measured physiological variables, including heart rate, breathing rate, and cadence. The study protocol included a 5-minute resting period, followed by 30-45 minutes of recreational pickleball play against opponents of matched skill levels. Pickleball players across all skill levels reported similar levels of perceived effort and high enjoyment while playing. However, physiological responses such as increased breathing rate, heart rate, and cadence are significantly correlated with skill level, with higher-skilled players demonstrating greater values in these

measures, including percent maximum heart rate. These findings suggest that higher-skilled players exhibit greater movement intensity and require a higher level of cardiorespiratory fitness and stamina to sustain play compared to their lower-skilled counterparts. This study highlights the elevated physiological demands placed on higher-skilled players during pickleball. As skill level increases, so does exercise intensity, enabling players to achieve the health-enhancing benefits associated with moderate physical activity through pickleball participation.

Title: Elucidating the Roles of TOX and LRRC1 on Melanoma Cell Migration and Invasion
Authors: Allison Stevens, Janellie Valmaceda, Mya Gleed, Kingdom Wanjoku, Gennie Parkman
Affiliation: Weber State University
Abstract: Melanoma is the most common and deadliest form of skin cancer, with Utah reporting the highest incidence rates per capita in the United States. While advances in treatment have improved patient outcomes, therapy resistance remains a significant challenge, particularly in addressing melanoma metastasis. The progression of melanoma from benign nevi to invasive cancer is well understood at the genetic level; however, the molecular mechanisms driving migration and invasion require further investigation. Two genes of interest, thymocyte selection-associated high mobility group box (TOX) and leucine rich repeat containing 1 (LRRC1), have been identified as a potential driver of melanoma metastasis. A study by our collaborator, Dr. Benjamin Izar, found that TOX and LRRC1 expression are elevated in melanoma brain metastases compared to non-metastatic tumors, suggesting its role in tumor progression.

Physical Science
Posters

Title: Raman Imaging of Carbon Materials
Authors: Seth Stringham, Dr. Dustin Shipp
Affiliation: Utah Valley University
Abstract: Graphene, a single atom-thick layer of carbon, is a focal point in various research fields due to its unique properties. With researchers developing new methods to create this material, it's crucial to establish tools to confirm the authenticity of graphene samples. This study investigates the use of spatial Raman imaging to identify variances and detect defects in carbon-based materials. By applying spatial imaging techniques to various samples, we aim to map structural irregularities and variations across the sample surfaces. Hyperspectral Raman imaging provides detailed insights into vibrational properties, enabling the visualization of layer thickness and the detection of defects such as impurities or dislocations. This approach could enhance the ability to identify and analyze imperfections in graphene, improving material quality control and advancing research in carbon-based materials for various applications.

Title: Indirect Detection of Dark Matter in Dwarf Spheroidal Galaxies
Authors: Spencer Brickey, J. Leonardo Yucra, Jonathan Cornell
Affiliation: Weber State University
Abstract: Dwarf spheroidal galaxies (dSph) are particularly promising targets in the search for gamma-rays from dark matter annihilation due to their low astrophysical background, high dark matter to baryonic matter ratio, and proximity to the Milky Way. In this work, we estimate the effect J-factors of 22 dSph for dark matter annihilations: s-wave, p-wave, d-wave, and Sommerfeld-enhanced. We present constraints on the cross section for these various annihilation types using Fermi-LAT data as analyzed by the publicly available tool MadHAT.v2

Title: A Pilot Study Investigating Virtual Reality for Chemical Education

Authors: Kaden Jensen, Matthew Prater
Affiliation: Southern Utah University
Abstract: Connecting 2D molecular structures to their 3D counterparts can be exceptionally challenging for students studying chemistry, especially in the context of stereochemistry and symmetry. Many students struggle with vizualizing the spatial arrangement of atoms, which is crucial for predicting molecular properties. Virtual reality (VR) can be useful to bridge this gap of understanding by allowing students an immersive experience to interact with the 3D structures next to their 2D drawings. As no user-friendly application existed, we built a new VR program to help students internalize this important relationship. Our application was specifically designed to simplify difficult spatial reasoning by allowing them to rotate the 3D models. We used student survey data to examine student perceptions of the utility of this learning modality.

Title: Effects of Heavy Metal Uptake in the Growth and Development of Lactuca sativa L.
Authors: Audrey O'Donnal, Riley Jackson, Braden Robinson
Affiliation: Utah Valley University
Abstract: Heavy metal pollution concern in Utah soils is increasing with a greater number of local excavations have been subject to study. The intention of this research is to add to the Hypothesis that heavy metal exposure affects plant growth. Research so far has indicated that plant exposure to heavy metals can directly affect plant growth and development. To test this, two different experiments, using Lactuca sativa L were performed. Firstly we proceeded to sew 10 seeds into 12 individual pots having soil contaminated with 200 ml of a 50 ppm stock solution containing Chromium (Cr), bismuth (Bi) cobalt (co), copper (Cu), zinc (Zn), nickel (Ni), and cadmium (Cd). An additional 12 pots were sown in soil contaminated with 200 ml of a 10 ppm stock solution using the same metals 12 pots were not contaminated to serve as our control. To further define which heavy metal could be impacting the seeds. We tracked the germination rate of 960 seeds by placing 20 seeds in an individual petri dish containing a 10 ppm stock solution and a 50 ppm stock solution from one of the aforementioned heavy metals. Germination rates were tracked over a period of two weeks. 12 petri dishes contained only sterilized water to serve as a control.

Title: Benefits of Utilizing the ACS manual throughout CHEM 1210
Presenter: Claire Neuberger and Fernanda Perez
Authors: Caleb Hiller, Claire Neuberger and Fernanda Perez
Affiliation: Southern Utah University
Abstract: The America Chemical Society (ACS) standardized test is widely used to measure students, comprehension in chemistry courses. At the completion of each semester students in CHEM 1210 take this exam and receive their percentile rank. Traditionally, students rely on the ACS Study Guide only in the last couple of weeks of school, a method that has proven ineffective in improving final grades. This study investigates whether integrating the ACS Study Guide throughout the course improves student performance. Selected problems from the guide were assigned alongside regular coursework. Additionally, students are completing surveys after each midterm, allowing us to determine its perceived effectiveness.
After the first exam, 53.3% of students believe that the ACS Study Guide should be incorporated into future iterations of this course as a valuable practice tool. However, its effectiveness in preparing for the first midterm was rated as an average of 6.17/10. While students recognize its potential benefit for the final exam, they find that it adds more to their workload for the course. As one student noted, I really think the ACS homework is a practice for the ACS test, but I don't think it is much more help for regular exams than just the regular homework we have to do.

Social Sciences

Posters

Title: The Paradox of Protest: Political Dissatisfaction and Satisfaction with Democracy
Author: Kendra Pinegar
Affiliation: Brigham Young University
Abstract: This paper examines the relationship between dissatisfaction with government performance, political protests, and democratic satisfaction. While protests are often seen as a symptom of failing democracies, this paper argues they can instead reinforce satisfaction with democratic institutions by empowering citizens and showcasing the protection of democratic rights. Using data on political mass mobilization and democratic satisfaction, the study finds a nuanced, non-linear relationship: protests initially correlate with decreased satisfaction, but frequent protests eventually enhance it, reflecting increased appreciation for democratic protections. These findings highlight the need to distinguish satisfaction with democracy from evaluations of government performance and offer new insights into the role of protests in democratic systems.

Title: Gaps in Gun Safety: A Dual Lens Approach to Addressing Gun Safety in Utah through Policy and Community Action
Authors: Kaisha McFall, B. Meglen
Affiliation: Utah Valley University
Abstract: This research explores the critical gaps in gun safety resources and education across Utah, focusing on the interplay between legislative policies and community-based interventions. Utah ranks among the highest in the U.S. for accidental child shootings and gun-related suicides, highlighting the urgent need for targeted gun safety measures. The state's relatively lax firearm regulations make it one of the easiest places in the country to access guns, presenting both opportunities and challenges in implementing effective safety strategies.
Using a dual-lens approach, this analysis combines a legislative review with a social work perspective. Through a review of existing studies, legislative documents, and public health data, the research identifies four key factors contributing to gun safety disparities: misinformation, insufficient funding, misleading legislation, and harmful feedback loops. By examining these factors, the analysis uncovers regional and demographic trends that perpetuate safety gaps.
Key strategies for improving gun safety include advocating for safer firearm designs, such as locking safety triggers and “smart” guns, as well as passing policies like extreme risk laws, which would temporarily restrict firearm access for individuals deemed a threat to themselves or others. This research aims to equip policymakers, community leaders, and educators with evidence-based interventions to address gun safety issues, reduce firearm injuries, and improve responsible ownership across Utah.
By integrating both policy and community-driven perspectives, the research highlights actionable solutions that could build a more robust, comprehensive safety culture statewide.

Title: Bridging the Gap: A Communication Privacy Management Approach to Student-Faculty Interaction in Higher Education
Authors: Sarah Steimel, Chloee Robison
Affiliation: Weber State University
Abstract: This study examines the criteria undergraduate students use to develop privacy management rules when deciding whether to share personal struggles and stress with their instructors, guided by Communication Privacy Management Theory (CPM). CPM highlights individuals' belief in owning their private information and the rules they create to regulate its disclosure, emphasizing the vulnerability in sharing personal matters. High-stress levels among college students have documented impacts on academic performance, mental health, and well-

being; while faculty-student relationships and social support have been shown to alleviate stress, the factors that shape students' decisions to confide in faculty remain underexplored.
This qualitative, interpretive study employed semi-structured interviews and focus groups with 40 undergraduate students to investigate which criteria students use to develop privacy management rules with instructors. Data analysis, grounded in CPM, revealed four main themes influencing students' privacy management decisions: (1) Culture, norms of higher education and past experiences inform disclosure choices; (2) Motivations, help-seeking for academic support and relationship-building and reciprocity with professors; (3) Context, factors such as course policies, physical environment, relevance to class content, and the professor-student relationship influence openness; and (4) Risk-Benefit Assessment, students weigh potential stigma, face risk (embarrassment), and role risk to social and professional standing.
By understanding these CPM-informed factors, educators can better support student well-being and enhance academic success through informed communication practices.

Title: Perceived Financial Threat and Fear of Financial Crime
Authors: Heeuk Dennis Lee, David Kim, Liz Homez Gonzalez
Affiliation: Weber State University
Abstract: The current study examines the relationship between perceived financial threat and fear of financial crime. Fear of crime has received substantial attention in the criminological literature; however, only a limited number of empirical studies are available on fear of financial crime. Also, most existing studies that measured fear of crime have relied upon young adult samples from colleges. As financial crime victimization has become an essential area of research, more empirical studies into the fear of financial crime among the general public are needed. Using an online American fear survey from a market research firm, results indicate that perceived financial threat was positively associated with fear of financial crime among participants. Limitations and future studies are discussed.

Title: Temporal Discounting in Dating
Authors: Jayden Back, Rebecca Lake, Sam Luker, Annalee Howes, Nick Marsing
Affiliation: Snow College
Abstract: In everyday life, there are countless different relationships when it comes to work, school, or family. But when it comes to romantic relationships, many factors are involved in choosing a relationship with a romantic partner. But, why do people choose these romantic partners, and why do some enter a romantic relationship faster than others? This research is intended to investigate temporal discounting within romantic relationships. Temporal discounting refers to a person taking a smaller reward sooner instead of waiting longer for a larger reward. What would a person sacrifice to have a 'discounted' relationship sooner? The research's goal is to find out what each participant would want in a potential partner (traits, characteristics, etc) and at what point they are willing to give up some of those ideals.
To acquire the data needed to perform this research, a survey was created which asked a series of different questions. The first part of the survey gathered general information about the participants (age, location, education, religion, etc). The second part gathered data on relationships as well as specific qualities or ideals a person would want in a potential or current partner. Scenarios were given, in the third part, to evaluate whether the person would be willing to give up certain lifestyle situations to have a romantic relationship sooner. A unique aspect of the research, which is also assessed within the survey, is the specific focus on religion. The research and survey accentuate the differences of how religion, mostly the LDS religion due to its popularity in Utah, may be encouraging for younger or sooner marriage. The data shows whether or not religious members are more willing to give up key characteristics or ideals to be in a romantic relationship sooner.

Title: The Boo Factor: Comparing Emotional Reactions to AI-Generated vs. Human-Made Ghost Stories and Paranormal Experiences

Authors: Alison Romero, Christopher Lowery, Emma Woods, Jade Ernst, Melissa Oman, Veronika Tait and Nick Marsing
Affiliation: Snow College

Abstract: This study explores the emotional impact of ghost stories generated by artificial intelligence (AI) compared to those written by humans, investigating whether AI can replicate the emotional depth and authenticity traditionally associated with human storytelling. Conducted by students at Snow College, the research utilized skin conductance response (SCR) to measure participants' physiological reactions, along with surveys to gather subjective feedback on engagement and fear levels. Participants listened to five stories, including two human-made and two AI-generated ghost narratives, with a neutral story used as a baseline. The findings revealed no significant differences in emotional intensity between the two story types, with both evoking comparable levels of fear and suspense. Additionally, participants struggled to consistently differentiate between AI-generated and human-written stories, suggesting that AI-generated narratives were perceived as equally compelling. These results underscore the growing ability of AI to create emotionally relevant content, which raises important questions about the role of AI in creative fields and its potential to mirror human emotional expression.

Crunching Numbers: The Effect of a Calculation Task on the Stress Response

Authors: Kelsey Peterson, Isabella Hixon, Brecken Spencer, Ethan Garff, Kaitlyn Jensen, Shonda Ewell, and Dr. Claudia Jorgensen
Affiliation: Utah Valley University

Abstract: When exposed to stress, the sympathetic nervous system activates the stress response, altering body temperature and increasing respiration, sweating, and heart rate. Stress is associated with poor health outcomes and mental illness. College students face many potential sources of stress, including financial, social, and academic pressures. Music interventions have been shown to mitigate the stress response and improve mental well-being, but research on the influence of specific music qualities is sparse. We performed a within-subject repeated measures experiment in which heart rate, electrodermal skin response, and body temperature were recorded while undergraduates performed a potentially stressful calculation task. The participants performed the task without music and then completed the task two additional times with music exposure, first with either fast-paced or slow-paced music genres and second with the opposing condition. We observed no impact of music genre on the physiological measures. Because the data suggested an impact from practice rather than music genre, we performed a follow-up experiment to assess the effect of practice specifically. One group was exposed to two consecutive fast-paced music tracks and the other was exposed to two slow-paced tracks. We found a significant reduction in both error rate and skin conductance change score, suggesting that the stress response may decrease with practice. We now hope to establish whether the calculation task is indeed stressful, which will have implications for both our previous experiments and understanding the stress response to a common academic stressor. The current experiment compares baseline physiological measures during a non-stressful task (viewing a nature slideshow) with physiological measures during the calculation task without music. We hypothesize that performing the calculation task will alter heart rate, skin conductance, skin temperature, and heart rate variability. We predict a positive correlation between self-reported stress levels and error rate.

Title: Generations Against Innocence

Authors: Sarah Goodman, Camden Jorgensen, Isaac Atkinson

Affiliation: Snow College
Abstract: Researchers have studied factors that affect views, opinions, and sentences given inside the courtroom. Based on research surrounding media exposure of jurors before trials, theories developed about the impact of television crime shows, including “Perry Mason syndrome” and the “CSI effect”. Building off this, research was conducted to see how generational courtroom crime television shows affect potential jurors’ views of innocence.
The approach was to control what media participants viewed paired with descriptive and quantitative surveys. Volunteers were separated into three groups. One experimental group watched older crime shows (pre-2000s) while another watched modern crime-based shows. The control group watched neutral tv shows. Participants were given pre- and post-surveys of mock trials, in which they declared a verdict. The mock trials did not provide enough evidence to prove the defendant guilty beyond a reasonable doubt.
Results are currently being analyzed, and initial study findings show that no evidence that consumption of any specific tv show significantly impacts viewers’ presumption of innocence. Confounding factors may be preconceived beliefs about innocence and justice, which were partially demonstrated in the pre-survey. Although the answers occasionally changed from the pre-survey to the post-survey, there is not enough evidence to postulate causation.
Overall, thus far this study has not found conclusive evidence that viewing specific courtroom crime shows impacts people's presumption of innocence. There is an indication that pre-existing beliefs may have a heavier influence than media consumption. While there is no correlation between particular shows and assumption of innocence or guilt, the preliminary nature of these findings warrants further study. The role of media as a potential influence on juror decision-making remains an open question. Knowing the impact of media on juries is crucial to understanding our justice system and ensuring that it limits bias.

Title: High Concentrations of Air Pollution for Marginalized Groups in Salt Lake Valley
Authors: McKay Jones, Janessa- Michelle Purcell
Affiliation: Utah Valley University
Abstract: Several studies report higher concentrations of particle matter (PM 2.5) and other harmful chemicals for marginalized groups in Salt Lake Valley. Due to the state’s overreliance on highways, high rates of wildfires and droughts, pollution from mining and industry, and an ever-shrinking Great Salt Lake, Utah faces countless threats to the health of its citizens. West Salt Lake Valley houses Utah’s most ethnically diverse population, which has a 10-year lower life expectancy than East Salt Lake Valley. Historical factors including colonization and redlining contribute to this environmental justice issue. However, most scientific and health studies that focus on these marginalized groups remain inaccessible for these people. Therefore, systems thinking and systems mapping methodologies were used as an approach to understand the structural inequalities that contribute to this east-west disparity. Systems mapping utilizes casual-loop diagrams, icebergs, existing intervention matrices, and stakeholder maps that prove more obtainable and usable for frontline communities. Information was gathered through interviews, scholarly articles, podcasts, periodicals, and other sources of lived experience. Since Utah’s government may reject federal environmental regulations, local mobilization proves most effective for promoting healthier policies. Increased representation of minorities in positions of power can bring wider awareness to this environmental injustice. Our research recommends improved public transportation infrastructure, strategic investment into grassroots organizations, and a general upliftment of frontline communities' storytelling to address this social issue. Through a combination of a comprehensive literature review and consulting methods of existing interventions, this poster can be used to strategically design more sustainable solutions.

Title: Gym Culture and Self-Perception

Authors: Joshua Mullen, Kimberly Jones, Adilen Yanez Maciel, Tom Hanson
Affiliation: Salt Lake Community College
Abstract: For many years the gym has been seen as a place to improve one's body image. Research has backed this up and says that the gym does help improve body image. However, it seems that after a certain amount of years, and the more experience you gain, the effects wear off and sometimes start negatively affecting body image. One reason this could be is because of the presence of fitness influencers on social media. Some influencers have started trends that focus on how the gym made them start hating their bodies. Our research aims to figure out the correlation between one's self-perception and the amount of time spent in the gym. We will recruit our participants by hanging up flyers in gyms in the Salt Lake area. Participants will fill out our survey which contains multiple inventories relating to physical activity, commitment to exercise, and self-perception. After collecting and interpreting the data we will see if there is any correlation between one's self-perception and how long they have been active in the gym.

Choice Overload: Post-decision Satisfaction Amongst Online Daters
Authors: Janessa Dyches,Taryn William, and Ozkar Jensen
Affiliation: Snow College
Abstract: This research examines how the abundance of options on dating apps causes choice overload. With the constant flow of media and easy access to apps, users often face an overwhelming number of options. While this can simplify partner selection, it can also lead to fatigue and difficulty making decisions. We hypothesized that having more potential matches would result in increased choice overload and lower satisfaction with the participants selected partner.
A total of 104 participants from the ages 18-54 completed an online survey via SurveyMonkey, where they were randomly assigned to one of the two groups: one viewing 40 profiles, the other viewing only 10 profiles. Participants selected their match and rated their satisfaction on a 1-10 scale. Each participant was then asked to record the amount of time it took for them to make a decision. After making their selection, participants answered post-survey questions regarding their initial intentions, including whether they would be interested in going on a date with their chosen match and what they were looking for.
Contrary to our hypothesis, participants in the 40-option group had slightly higher satisfaction (7.1/10) than those in the 10-option group (6.48/10). It was expressed that minimal choice overload occurred, the 40-option group however discussed their preference for more personalized filtering, while those in the 10-option group found the limited options frustrating and not fit for their preference.
These findings suggest that while a handful of options can be overwhelming, too few options might be more frustrating than beneficial. Future research should test varying pool sizes, explore the impact of personalized filtering, and refine methods to measure decision-making accuracy.

ORAL ABSTRACTS

Arts
Oral

Title: Bomba from Utah: Studying a Puerto Rican Folk music in a Modern Diasporic Context
Author: Drew Fallon
Affiliation: University of Utah
Abstract: Bomba is an Afro-Puerto Rican folk music and dance tradition that, although heavily stigmatized within Puerto Rico and its diaspora, has become a symbol of Puerto Rican national

identity and autonomy in working-class communities. While previous work examines Bomba's important role in establishing a cultural identity for Afro-Puerto Ricans (Catragena 2004, Vega-Drouet 1979), little research examines its role in diasporic communities. This paper addresses the gap in the literature by examining the experiences of Bomba Marilé in Salt Lake City, Utah. As one of the only prominent representatives of Puerto Rican culture in Utah, their experience offers insights into the way bomba can create a space for both intercultural exchange and pan-Latinx community-building in Salt Lake City. I propose that bomba's development among an African diasporic slave population allows it to fulfill similar exigencies in the modern Latinx community, including the need for self-expression and community-building. These are especially important in the current context of xenophobia and mass deportations in the U.S., and in light of Puerto Rico's status as a colonized state.

Title: Harmonious Inclusion: Exploring Accessibility in Musical Theatre for the Deaf and Blind Communities

Authors: Francesca Mintowt-Czyz and Audree Clark
Affiliation: Weber State University

Abstract: Musical theatre is an art form that thrives on spectacle. It is an art form that combines music, movement, and text, weaving all elements together to tell powerful stories. Yet, for Deaf and Blind audiences, these elements often remain out of reach due to longstanding accessibility gaps. In this presentation, we will explore the barriers that prevent sensory-disabled individuals from fully experiencing musical theatre and discuss how the industry can evolve to be more inclusive.

Currently, accessibility efforts in theatre remain limited. While ASL interpretation and captioning have become more common, they are not always integrated in a way that allows Deaf audiences to experience the full nuance of performance. Similarly, audio description is available in some productions but is rarely designed to capture the dynamism of musical theatre's choreography, set changes, and character interactions. Sensory-disabled individuals deserve more than minimal accommodations, they deserve a theatre that actively invites them into the storytelling process.

We will present both immediate and long-term solutions that theatre educators, producers, and artists can implement to bridge this gap. Short-term strategies include hiring Deaf and Blind consultants, offering designated ASL-interpreted and audio-described performances, and incorporating haptic feedback and tactile elements into productions.

By reimagining accessibility in musical theatre, we move toward an industry where every audience member, regardless of ability, can fully experience the magic of live performance. This presentation aims to inspire change and provide actionable steps toward a more inclusive future.

Title: The Choreography of Fear: Exploring the Societal Anxieties of "The Other"

Author: Abbie Simpson
Affiliation: Utah Valley University

Abstract: As we transition into the 21st century, societal anxieties around identity and "the other" have resurfaced, stemming from the sociopolitical turbulence of the 1980s and 1990s. This era, marked by events like the AIDS crisis, the fall of the Soviet Union, and racial tensions, highlighted issues of marginalization faced by LGBTQ+ communities and racial minorities. This research examines Michael Jackson's short film Ghosts, an artistic commentary on these fears, using the horror genre to amplify societal anxieties.

Using a New Historicism framework, this analysis considers how Ghosts reflects the cultural context of the late 20th century. By incorporating Joann Kealiinohomoku's idea of dance as cultural research, the study explores how movement narrates complex societal issues. Combining written source analysis, historical context, and a critical analysis of Jackson's choreography, this

research investigates how the film addresses the concept of "othering." The study also explores how dance can express identity and societal fears.
The findings show that Ghosts uses horror to symbolize marginalized identities, confronting the audience with fears that challenge notions of normality. The Maestro, played by Jackson, embodies the complexities of "the other," highlighting the relationship between power and marginalization. Scenes of the Mayor's authority clashing with the Maestro's defiance emphasize anxieties surrounding societal rejection. A detailed analysis of Jackson's choreography reveals movement that resonates with the experience of being "the other," critiquing prejudice while expressing empowerment and resilience against discrimination. Ghosts exemplifies how art engages with cultural dialogues on inclusion and representation. By analyzing horror, dance, and societal fears, this research contributes to understanding how performance articulates identity in the face of marginalization and advocates for a nuanced perspective on inclusion across artistic domains.

Title: Deciphering the "Jesus is Here" Cave: Early Christian Worship, Sacred Space, and Hierophany at Horvat Beit Loya
Author: Brandon Ro
Affiliation: Utah Valley University
Abstract: This study reexamines the so-called "Jesus is Here" cave, a rock-hewn cistern at Horvat Beit Loya in Israel, that was later transformed into a sacred Christian site. The cave contains a Greek inscription reading "Jesus is here" or "Jesus is present," a stylized cross-like Christogram, and an artistic depiction of a man standing in a boat with a raised right hand. These elements suggest that the site functioned as a place of religious significance, possibly serving as a hermitage, a location for early Christian liturgical practices, or even a secret place for baptism. The study contextualizes the inscription and iconography within the broader landscape of early Christian sacred spaces by drawing from archaeological, epigraphic, and ritual studies. Through comparative analysis with similar inscriptions and religious symbols in the region, the research explores the potential meanings of Christian hierophany, "the manifestation of the sacred," at Beit Loya. The study concludes that the cave's transformation from a utilitarian structure to a site of religious devotion aligns with broader patterns of sacred space formation in early Christianity. The inscription's ambiguous yet powerful declaration of Jesus' presence reflects theological concepts of divine immanence, ritual practice, and the sanctification of space.

Title: The Consequential Career of Francis Davis Millet
Author: Charlotte Poulton
Affiliation: Utah Valley University
Abstract: One of the most influential nineteenth-century artists is one few have heard of: Francis Davis Millet. He has been overshadowed by friends and colleagues like Mark Twain, Henry James, John Singer-Sargent, Lawrence Alma-Tadema, and Edwin Austin Abbey, despite his similarly successful career. He is remembered more for his tragic death in the sinking of the Titanic than for his titanic life as a painter, illustrator, muralist, writer, adventurer, war correspondent, costume designer, and arts administrator. Some scholars argue that because he did not focus on excelling in one area, like painting, Millet doomed himself to fade into relative obscurity. However, it is Millet's astounding competence and success in each of these areas that make him one of the last truly Renaissance men in America. His life and career must be explored from a holistic perspective rather than isolating a few individual accomplishments for examination. A cursory examination of Millet's career reveals that he participated in wide-ranging, often interconnected, global events and artistic developments at the end of the nineteenth century from the Russo-Turkish war to the 1893 Columbian Exposition to the Broadway Colony. A closer examination reveals that without fanfare or ego, Millet exceeded all

expectations, and he always left a remarkable, indelible impression with every endeavor. This paper examines Millet's key contributions to three different areas of American art – training, subject matter, and arts administration – to argue for his recognition as one of the most consequential artists and cultural figures of the late nineteenth century. It derives from my work with the FD Millet Research Project, which is dedicated to creating a catalogue of Millet's visual and literary works.

Title: The Body as Border in Laura Aguilar's Three Eagles Flying
Author: Amanda Platt-Allen
Affiliation: University of Utah
Abstract: Laura Aguilar's Three Eagles Flying, taken in 1990, acts as a photographic performance of the U.S.-Mexico border. In this image, Aguilar cleverly and purposefully positions her body between the Mexican and American flags, literally making herself the border between the two cultures, identities, and lands. My paper will interpret this photograph through an overarching borderlands framework centered on how the body exists in-between places and identities (specifically Mexico and the United States), informed most prominently by writer and poet Gloria Anzaldúa. I will also contextualize this image by examining how and why Three Eagles Flying is unique among Aguilar's oeuvre; how it intersects and relates to the broader story of Chicanx art; how we can situate this work within the visual language of the U.S.-Mexico border, and finally what it means to position the body as a border, especially that of a fat, queer, Chicana woman. As Aguilar's body becomes the border, she draws attention to the strain and unnatural boundary of the actual borderland between the U.S. and Mexico and those who call it home.

Title: Female Creators in Mexican Surrealism: The Psychological Effects of Exile on the Art of Remedios Varo and Leonora Carrington
Author: Aubrey Gallafent
Affiliation: Utah Valley University
Abstract: Themes of transformation and mysticism are commonplace in the work of Remedios Varo and Leonora Carrington. This paper will examine the effect that exile had on these Mexican female surrealists in their exploration of the creative powers within feminine identity. Their paintings mix alchemy and witchcraft with distorted or hybrid female forms. Carefully planned compositions are rich with symbolism and metaphors. Explorations into this shared pictorial language reveals their personal journeys with femininity. Female artists of this period struggled with identity and artistic freedom when confronted with Surrealist ideals. The framework of the movement pushed the concept of femme-enfante and femme-fatale onto women, trapping these artists into the state of object and muse. Their freedom and sense of self were further restricted by the effects of World War II. Many were exiled from their home countries and transplanted into a new environment.
In Art and the Conditions of Exile, Linda Nochlin discusses how the state of exile affects artists' creativity. She specifically, but briefly addresses the bond created between Varo and Carrington due to exile. These two artists are able to explore identity together, and developed overlapping artistic worlds to explore the idea of androgyny and creation. The state of exile created an opportunity for collaboration and metaphysical exploration that would not have been possible otherwise. This concept will be further explored in relation to Gloria F. Orenstein's analysis of the female surrealist's identity crisis. Varo and Carrington's psychological and spiritual developments are visible in the subject matter and symbolism of their art. These ideas will be explored in Varo's works Born Again and Creation of the Birds, as well as Carrington's Amor che move il Sole e l'altre Stelle and The Kitchen Garden on the Eyot.

Title: The "Last Woman": Reimagining Female Apocalyptic Experiences in Threads (1984)
Author: Sophia Osburn
Affiliation: Brigham Young University
Abstract: Female representation in science fiction film has historically been limited and restricted, often placing female characters in idealized, sexualized, and passive roles subordinate to male heroes. The late 70s and early 80s show a shift towards more active roles for women as empowered heroines with films such as *Alien* (1979). In this context, Barry Hines' anti-nuclear apocalypse film *Threads* (1984) aligns with these trends toward increasingly active roles for women in science fiction films. Although much of the scholarship around Threads has focused on its political and polemical statements about nuclear war, the film's emphasis on depicting the extent of nuclear destruction across demographics necessitates an examination of its unique depiction of women. Unlike the heroines of films such as *Alien* (1979), Ruth, the protagonist of Threads, is not a salvific figure nor is she a passive damsel as seen in earlier eras. Instead, the film gives Ruth many of the markers and narrative functions of the postapocalyptic "last man" archetype, serving as a lonely, determined everyman guiding the audience through the apocalypse. However, simply reading Ruth as a female "last man" is insufficient, as the film takes care to highlight the female experience. Rather than simply being a woman placed in a placeholder role of a "last man," the portrayal of Ruth in the film leans more towards a reading of the character as a "last woman." Her uniquely female experiences are emphasized and treated with dignity while still allowing Ruth to perform the functions associated with the "last man" role. This depiction raises questions about the narrative potential for female characters in nuanced roles in science fiction rather than following the tired tropes of classic sci-fi or simply plugging female characters into male archetypes.

Title: Marcel Duchamp and Rrose Selavy: Gender as Readymade
Author: Cameron Christensen
Affiliation: Utah Valley University
Abstract: Dada Artist Marcel Duchamp's use of a female alter ego in his publishing, artmaking, and personal life is compared to his use of mass-produced objects in his readymade series. The invention of Rrose Selavy is explored, emphasizing her identity as a modern Jewish woman experiencing new independence as well as eroticization. The new female consumer culture and independence afforded to women arising after WWI is offered as explanation for the conflation between women and commodities in society as well as Duchamp's work. Judith Butler's phenomenological gender theory is used to establish the repetition of gender as its own mass-produced object. The established visual traditions for male artists are examined in order to explain how Duchamp subverts the artist identity with Rrose Selavy. Both in his Fountain and in Rrose Selavy, Duchamp disrupts the aestheticized repetition found in manufactured objects and gender norms, eliminating their pre-existing directives and turning them into art. Revealing the performative nature of gender radically eliminates its restrictive functions and furthers his goal to critique bourgeois modernism.

Title: Gendered Sacrifice: The Impact of Site and Story at the 1785 Salon
Author: Elli Coupe
Affiliation: University of Utah
Abstract: A large blank space on the wall greeted the audience for the opening of the 1785 Salon. This space and subsequent painting, Oath of the Horatii by Jacques-Louis David, became the talk of the Salon. Its distinct subject matter, and the imposing quiet grandeur of the composition, drew the audience's attention like none of the other paintings displayed could. Of course, there were hundreds of paintings exhibited at the same time. One of these paintings, sitting directly left of Oath of the Horatii and nearly half the width of his massive composition was an understated

depiction of Piety and Generosity of Roman Women by Nicolas-Guy Brenet. Here too was an image of women's sacrifice, one that, like David's, was soon to become closely tied to the Revolutionary events of 1789. Piety and Generosity imagined an episode first told by Plutarch, in which the Roman women donated their gold to state for an offering to Apollo after his help with their conquest of Veii. In 1789 the gesture was emulated by the wives of prominent artists, who publicly donated their jewels to the cause of the Revolution. Brenet's painting of the antique model for the gesture was recalled by many and, as a consequence, re-exhibited in the Salon of 1791. Despite this later success, in 1785 the painting received a lukewarm response, while David's Oath was universally praised. This paper situates the contrasting critical responses received by David's Oath and Brenet's Piety and Generosity, looking to the conditions of display in the Salon Carré as well as the differing visions of women's sacrifice offered by the two paintings. Through a comparison of the paintings' formal strategies and subject matter, I explore the complicated questions and contradictions of the gender they evoked.

Title: Touching Loss: The Language of Hands in Käthe Kollwitz's Maternal Mourning
Author: Lily Greenwood
Affiliation: Utah Valley University
Abstract: German Expressionist artist Käthe Kollwitz is known for her depiction of hardship, loss, and grief. Having lived through two World Wars, Kollwitz was a first-hand witness to the sights that dealt with the pain and devastation of these heavy subjects; she was able to embed these deep and uncomfortable emotions into every line, shape, and shadow of her artwork, thus transferring the grief from the subjects in the prints to the hearts of the viewer. While Kollwitz was talented in expressing hardship, she was especially skilled in depicting a specific type of sadness: maternal mourning. During the First World War, she lost her son, and in the Second, she lost her grandson. These experiences helped her understand the true nature of a mother's grief, grief that she then transferred to her artwork. In Kollwitz's representation of maternal mourning, her depiction of hands and their language serves as a major channel to communicate grief.
This presentation will look specifically at how Käthe Kollwitz uses her depiction of hands as an outlet to express motherly loss and mourning. When looking at Kollwitz's work, I will specifically explore how her use of gestures, hand positioning, and hand emphasis work to articulate maternal emotions. As I'm exploring these hands, I will look specifically at works like Woman with Dead Child (1903), The Widow II (1922), Lament (1938-41), The People (1922), and The Mothers (1922-23), all which use hands in their telling of motherly grief and anxiety. Through exploring this topic, I hope to add to the conversation of the deep emotion communicated through Kollwitz's work, exploring how much of this delivery comes specifically through her depiction of hands.

Title: Touching Loss: Art Beyond Western Tradition: The Never Ending Influence of Taíno Art in the Dominican Republic
Author: Amanda Lowry Wiberg
Affiliation: Southern Utah University
Abstract: My thesis examines the lasting influence of Taíno art on the artistic identity of the Dominican Republic, challenging the prevailing Eurocentric narrative in art history. While Western artistic traditions were introduced to the Caribbean through Spanish colonization in the 15th century, the indigenous Taíno artistic expressions have played a more significant role in shaping the Dominican Republic's visual identity. Taíno art, characterized by symbolic imagery, zemí sculptures, pottery, and woven designs, was deeply tied to religious and social practices. However, Spanish colonization sought to suppress and replace these traditions with European artistic conventions, particularly through the introduction of Christian iconography.

Despite the eradication of the Taíno people due to colonization, their artistic influence persisted. My study proves this by focusing on the 20th-century Post-Taíno movement which saw a resurgence of indigenous aesthetics in Dominican visual art. My thesis explores the works of artists like Paul Giudicelli and Ramón Oviedo who incorporated Taíno themes into their work. Similarly, my writing includes an examination of Taíno influences that are evident in Dominican performance arts, particularly in Bachata music, which blends indigenous rhythms with modern styles. Additionally, I focus on contemporary artists who continue to draw inspiration from Taíno motifs as well as museums and cultural institutions that celebrate this artistic heritage, further solidifying its role in the nation's identity.

My thesis ultimately argues that Taíno art has had a greater impact on Dominican artistic developments than the Western traditions introduced during colonization. The continued presence of Taíno aesthetics in contemporary Dominican art, music, and cultural tourism highlights the resilience of indigenous heritage and its role in shaping national identity. By recognizing the significance of Taíno artistic contributions, my research challenges the notion that artistic innovation stems primarily from Western influence, underscoring the importance of non-Western artistic traditions in global art history.

Biological Sciences
Oral

Title: Temperature-Dependent Strategies for Dengue Control: Integrating *Wolbachia* and Natural Predators in a Mathematical Model

Presenter: Vinodh Kumar Chellamuthu
Author: Vinodh Kumar Chellamuthu
Affiliation: Utah Tech University

Abstract: Dengue is a mosquito-borne viral infection that is widespread in tropical and subtropical regions, leading to millions of infections annually. The disease is primarily transmitted by *Aedes aegypti* mosquitoes (AEM) and is caused by one of four dengue virus serotypes, with secondary infections often resulting in more severe health complications. A well-established strategy for reducing transmission involves infecting AEM with *Wolbachia pipientis* bacteria, which can limit the mosquitoes' ability to transmit the virus. However, dengue remains a persistent global health challenge due to environmental factors that influence mosquito populations and viral transmission rates.

Recent research suggests that leveraging natural predators, such as *Toxorhynchites splendens* (TxS) larvae, could provide an additional means of controlling AEM populations. Given that both *Wolbachia* effectiveness and mosquito-predator interactions are influenced by temperature variations, understanding these dependencies is crucial for optimizing dengue control strategies. To address this, we developed a mathematical model that incorporates both *Wolbachia*-infected mosquitoes and TxS larvae, explicitly accounting for temperature-dependent factors that impact mosquito survival, reproduction, and predation rates. By integrating these ecological and biological dynamics, our model aims to identify effective intervention strategies under varying climate conditions.

Title: An examination of the chloroplast petD intron among eusporangiate ferns

Author: William Speer
Affiliation: Salt Lake Community College

Abstract: The chloroplast petD gene consists of two exons separated by a group II intron with six stem-loop domains (DI-DVI). This study examines the petD intron of taxa representing the major eusporangiate lineages from downloaded GenBank sequences. For the eusporangiate ferns examined here, the intron length varied from 591 to 712 bp. As expected for group II introns, DI

was the largest of the six group II intron domains and accounted, on average, for approximately 52% of the overall intron length, though intron length variation among taxa was observed. Additionally, there did not appear to be a directly proportional relationship between DI and intron lengths. For example, the *Equisetum* species had the smallest introns (591-597 bp) with a DI (343-345 bp) representing approximately 58% of the overall length. In contrast, the taxa in the genus *Ophioglossum* all had introns of 712 bp with their DI (347 bp) making up about 49% of the total length. Length variation between eusporangiate taxa was observed not only for the petD intron itself, but also among the domains. Among the eusporangiate ferns, DI did not exhibit the greatest degree of variation (324 to 347 bp). Instead, this was observed for DIV (63 to 172 bp). The lowest level of observed length variation was for DV (34 to 35 bp). Also included for comparison were members of the *Osmundaceae*, a group of ferns considered intermediate between eusporangiate and leptosporangiate ferns and/or as basal leptosporangiate ferns. Intron and domain values for osmundaceous ferns were, in general, comparable with the eusporangiate ferns. Secondary structures were generated, and a phylogenetic analysis was also conducted.

Title: Brain-eating Amoeba *Naegleria fowleri*: Drug inhibition in a human cell infection model
Authors: Aspen Acuña, Braden Freestone, Kody Korth, Victoria Green, Hannah Payne, Ethan Jensen, Daniel N. Clark
Affiliation: Weber State University
Abstract: *Naegleria fowleri*, a thermophilic, pathogenic amoeba, is the causative agent of primary amoebic meningoencephalitis (PAM), a rare and almost universally fatal infection with a 97.5% mortality rate. The amoeba, often found in the sediments of warm freshwater environments, infects hosts via the nasal passages, leading to fatal brain inflammation and swelling. Currently, there is no standardized treatment protocol for PAM, although rare attempts at treatment have been successful. This study investigates the potential efficacy of multi-drug combinations, using amphotericin B, azithromycin, fluconazole, and rifampin, to improve treatment outcomes against *N. fowleri*. Infection assays were conducted using human cells (HeLa cervical carcinoma cells, and IMR32 neuroblastoma cells) to assess the amoeba's response to these treatment combinations. In testing various drug combinations against *N. fowleri*, we found that the combination of amphotericin B, fluconazole, and rifampin achieved the highest levels of *N. fowleri* cell death while allowing the cultured human cells to survive. Preliminary results show which drug combinations provide better chances at survival. These findings underscore the critical importance of therapeutic treatments to improve survival rates for PAM patients, providing hope for individuals who currently have few effective treatment options.

Business
Oral

Title: Undergraduate Business Student Attitudes towards General Education Classes
Authors: James C. Brau, Cash Schmutz
Affiliation: Brigham Young University
Abstract: In this study we survey over 1,000 undergraduate students at a large, western, US private university. The sample is drawn from an undergraduate Principles of Finance course, required for all Business Majors and Business Minors. Student sentiment towards GE courses is recorded and analyzed based on a rich data panel of demographic data.

Title: Undergraduate Student Attitudes Towards the Impact of AI on Future Business Careers
Authors: James C. Brau, Cash Schmutz

Affiliation: Brigham Young University
Abstract: In this study we survey over 1,000 undergraduate students at a large, western, US private university. The sample is drawn from an undergraduate Principles of Finance course, required for all Business Majors and Business Minors. Student sentiment towards the impact of AI on their future careers is recorded and analyzed based on a rich data panel of demographic data.

Title: Desired Leadership Traits in First Bosses: A Study of Extant Leadership Theories
Authors: Nathan Boekweg, James C. Brau, Jameson L. Brau
Affiliation: Brigham Young University
Abstract: In this paper we document the extant theories of business leadership and partition them into main threads (i.e., Democratic, Transformational, Authentic, Authoritarian, Trait, Great Man, Transactional, Laissez-faire, and Path-Goal). Next, we examine the socio-cognitive literature on Generation Z and formulate hypotheses of desired leadership traits in first bosses. We then conduct a comprehensive survey gathering data from 799 undergraduate college students, asking them what preferred traits they would like to have in their first boss upon graduating from college. Empirical analyses are then conducted to test the various hypotheses pertaining to the extant leadership theoretical camps.

Title: The Oyster is Your World: A Revised Look at International Diversification
Author: Robert Dubil
Affiliation: University of Utah
Abstract: How should a U.S. investor saving for retirement construct the right stock portfolio across international markets? Using new WRDS country index data, this study constructs mean-variance efficient frontiers for dollar returns on up to 37 country stock indices over 1995-2023 and sub-periods to determine the empirical optimal global allocation. Contrary to recent studies showing rational over allocations to the U.S. market, the global tangent market portfolios are definitely U.S.-under-allocated resembling nominal-GDP or PPP-adjusted GDP weights, and not market cap weights or 100% U.S. Home-biased U.S. investors expose themselves to 0.4-0.7% higher monthly standard deviation of returns and suffer 0.1-0.2% lower means than the optimal allocators. The optimal strategies contain high Sharpe-ratio less correlated allocations to non-Eurozone European economies (Den, Nor, Switz), as well as Indonesia, Taiwan, Australia. Allocations to India are smaller than, and to China greater than, the GDP share of the world. Overall, nominal and PPP-adjusted GDP tend to be the best guide to portfolio construction. Market cap weighting which favors developed economies seems to harm long term mean-variance tradeoffs.

Title: Autonomous Annotations for Second-hand E-commerce Platforms using Generative Artificial Intelligence
Authors: Taehyun Noh, Jimin Go, Seokwoo Song
Affiliation: Weber State University
Abstract: Second-hand e-commerce platforms help customers reduce the cost of purchasing products and provide sellers with economic benefits. For successful product trading on second-hand e-commerce platforms, sellers should provide well-crafted product descriptions, build a strong reputation, and enhance communications. However, the platforms face challenges in achieving growth due to several concerns. First, customers may doubt the reliability of products on these platforms, as their descriptions are often subjective and simplistic. Second, sellers are most likely to post multiple product images on these platforms. The authenticity of product conditions significantly impacts customers' trading decisions, yet there is often a lack of evidence to verify product conditions.

Finally, these platforms are often inadequately managed, failing to meet customer expectations and enhance user experiences. Recently, generative artificial intelligence (AI) has been widely utilized to enhance the quality of e-commerce platforms. In addition, deep learning techniques have been adopted to detect defects from pictures across various domains, such as diagnosing faults in e-commerce, disease detection, and pixel defects on the screens. This study examines the impact of generative AI and deep learning techniques on second-hand e-commerce platforms. We propose an integrated method combining generative AI and deep learning techniques with TF-IDF and LDA approaches. Our findings highlight that the proposed method can enhance seller reliability, customer confidence, and the overall quality of second-hand e-commerce platforms.

Title: Cultivating Career Growth and Enhancing Workforce Resilience: The Role of Mentorship in Job Satisfaction and Engagement

Author: Wu-Ting Chen
Affiliation: Utah Valley University

Abstract: This study examines the impact of mentorship on employees' career satisfaction, development opportunities, job engagement, and personal growth, addressing two primary research questions: (1) How does access to mentorship impact employees' career satisfaction and development opportunities? (2) To what extent do mentoring relationships enhance job engagement and personal growth? Using a mixed-methods approach, survey responses from employees across various industries were analyzed to assess their experiences with mentorship, job satisfaction, and engagement levels. The survey included constructs such as meaningful work, job satisfaction, access to mentoring, work values, and engagement. Perceptions of mentorship were assessed through Likert-scale questions that explored mentor-mentee relationships, career development support, and mentorship's impact on workplace engagement. Results revealed a significant correlation between mentorship access and higher job satisfaction, with mentored employees reporting greater fulfillment in their roles and more opportunities for career advancement. Mentorship also significantly enhanced job engagement, with employees demonstrating increased workplace involvement, motivation, and professional growth. Notably, female employees with mentors reported lower job satisfaction than their male counterparts, suggesting potential gender-related differences in mentorship experiences. This study contributes to the growing body of literature emphasizing mentorship as a pivotal factor in employee well-being and career progression. It underscores the need for organizations to implement structured mentorship programs to support workforce development, foster leadership skills, reduce job-related stress, and promote long-term career resilience. By providing empirical evidence on the benefits of mentorship, this research advocates for the strategic integration of mentorship initiatives within the workforce to enhance employee retention, satisfaction, and engagement.

Title: Protecting the Mushroom Kingdom: A Case Study on Nintendo's Intellectual Property Regulation

Author: Hassan El-Cheikh
Affiliation: Brigham Young University

Abstract: Since 1985, Nintendo Inc. has been a dominating force in the video game industry. Exclusive franchises such as Mario, Zelda, and Pokémon have provided millions of fans with hours of gameplay and generated significant revenue for the Japanese company. However, with their successes has also come scrutiny over Nintendo's stringent regulation over its intellectual property. While common assumptions suggest Nintendo's actions stem from greed or market dominance, this research argues that the primary factors of fear of piracy, loss of its' intellectual property, and business pragmatism are the primary factors to the companies' decision to their protectionist approach. Through an analysis of Nintendo's corporate behaviors, decisions, and

public responses, this study reveals that the company not only desires to preserve its brand but through calculated strategies tries to maintain control in a competitive and ever-evolving market.

Title: Is TikTok Affecting the Mental Health of Your Employees? Examining the Link Between Compulsive TikTok Use and Mental Health.

Author: Jeffrey A. Clements
Affiliation: Weber State University

Abstract: This study investigates the potential relationship between compulsive TikTok use and mental health issues among employees. A survey of 603 men and women was conducted to examine their TikTok usage patterns, and the Mood Disorder Questionnaire was utilized to assess the presence of mood disorders. Results revealed that 26% of participants exhibited signs of mood disorders, a rate significantly higher than the general population's 10%. Notable limitations include the reliance on self-reported data and the exclusion of non-TikTok users. The findings suggest that compulsive use of TikTok may have a more pronounced negative effect on mental health than previously recognized. This is particularly concerning for employers, as the mental health consequences of social media use may extend into the workplace, affecting employee well-being and productivity. Understanding this link could help businesses implement policies and support systems that promote healthier technology use, fostering a more positive and productive work environment for both employees and organizations.

Additionally, businesses may consider incorporating digital wellness strategies and educational programs to raise awareness about the potential mental health risks associated with excessive social media use. This could include promoting work-life balance, reducing stigma around mental health, and offering resources for managing compulsive technology use. These efforts could reduce burnout, improve employee engagement, and ultimately enhance organizational success. Companies that address these issues proactively may also experience reduced healthcare costs and better retention rates, positioning themselves as leaders in mental health advocacy and corporate responsibility.

Title: Utah's Rising Property Tax and Income Tax Cuts

Author: Xiaoli Ortega
Affiliation: Utah Valley University

Abstract: This article examines the complex relationship between Utah's income tax cuts, school funding, economic growth, and the rapidly rising property taxes. It explores how the growing problem of property tax shifting affects homeowners' tax bills and how the Truth-In-Taxation law has not been able to balance between economic growth and rising property taxes.

Title: Long-Haul Trucking Firm Targets: An Empirical Analysis of the M & A Logistics Market

Authors: Gregory L. Adams, James C. Brau, Rebekah Inez Brau
Affiliation: Brigham Young University

Abstract: This paper investigates the characteristics of acquiring firms in mergers and acquisitions (M&A) involving trucking companies, utilizing data from the Thomson/Refinitiv M&A database. The study focuses on identifying key traits of the acquiring firms, including financial health, market positioning, and strategic motivations, and how these factors influence their decision to acquire trucking firms. By analyzing a sample of M&A transactions, the research explores trends in the size, industry focus, and financial performance of acquiring firms, while also examining the role of market conditions and acquisition strategies. The findings shed light on the profiles of successful acquirers, offering insights into their motivations for consolidating within the highly- competitive trucking industry. This paper contributes to the

understanding of strategic behavior in logistics-focused M&A, providing a detailed analysis of the factors driving acquisition decisions in the transportation sector.

Title: Does Ethics or Diversity Training Impact Perceptions of Emerging Adults towards Corporate Social Responsibility Diversity Metrics: A Mixed Methods Analysis
Authors: James C. Brau, Jameson L. Brau, Sabrina D. Volpone
Affiliation: Brigham Young University, Gonzaga University, University of Colorado Boulder
Abstract: The focus of this study is to examine emerging adult perceptions of diversity, equity, and inclusion (DEI) topics. We use a sample of 679 undergraduate students from a large private and a large public university, both located in the Western US, and ask questions pertaining to how important diversity is in the ideal first job. The dependent variables are derived from a corporate social responsibility database and focus on DEI issues. We employ a set of econometric tests to find correlations between demographic independent variables and six dependent variables as well as an aggregate Diversity Index dependent variable. The tests show that gender and political affiliation are robustly correlated with the DEI variables. Additionally, we test if high school or college courses, or on-the-job training covering DEI impact emerging adult perception. We find that college-level DEI classes have a statistically significant positive impact in individuals' perceptions of the importance of DEI issues, although this impact seems confined to only certain components of the many issues that comprise the broad topic of DEI. Two such affected components are the support of LGBTQ+ individuals and the employment of underrepresented groups. Our thematic analyses reveal nine themes for company social responsibility and five themes for women in leadership positions.

Title: Leverage Pays: an Analysis into Investing in Leveraged Exchange-Traded Funds (LETFs) Long-Term
Authors: Ashton Call, Todd Griffith, Asher Mitchell
Affiliation: Utah State University
Abstract: Leveraged exchange-traded funds (LETFs), which amplify the daily returns of an underlying index using derivatives, have been criticized for their inherent risks, causing concern for long-term investors. We investigate the viability of a long-term investment strategy in two LETFs, the ProShares Ultra S&P500 (SSO) and the Direxion Daily S&P 500 Bull 3X Shares (SPXL), both of which track the S&P 500 Index. We address three key concerns: tracking error, volatility decay, and default risk. First, through various empirical methods, we show that the lost returns due to tracking error are not significant enough to entirely offset the leverage factor. Second, using Monte-Carlo analysis to simulate random entry and exit points, we find that volatility decay does not substantially erode performance in sample market conditions. Finally, we present a stress test which shows that fund liquidation is highly unlikely even in extreme bear markets. We conclude that LETFs have been unfairly characterized and, with appropriate risk management, can be a keystone investment for long-term investors.

Education
Oral

Title: A "Formula" for a Perfect Youth Soccer Story
Authors: Faoiltiarna (Lilly) Schlenker, Cassidy Lamm, Halle Taylor, Whitney Blanchard
Affiliation: University of Utah
Abstract: A rise of interest in sports-related youth literature in the United States is pushing educators to seek out increasingly more sports stories for their libraries. One sport in particular gaining recent national popularity is soccer, and thus soccer-related literature is also increasingly popular. However, many of these soccer stories are memoirs or biographies by and about well-

known athletes and retell their journeys as players. This style of book can often be more difficult, and potentially too didactic, for young readers who may be newer to both reading and soccer. In this study, we examined fictional stories that potentially combine the authenticity of true soccer with the excitement and reading level of the middle-grades.
We examined the in-print young adult literature where soccer plays an integral role to the plot. Using our pre-designed and pilot-tested codebook and codes, we began by recording trends in elements such as plot, settings, and themes. We considered character traits related to gender, ethnic, and socio-economic diversity, and went beyond to examine positions played, skill level in soccer, attitudes towards soccer, and relationships between characters. We further recorded the amount and types of "soccer" present in each title, from informal play to practices and games to simply talking about soccer.
Thus, this content analysis provides a unique and accurate lens into the current state of youth soccer literature, considering the intersectionality of identities and elements of the sport itself leading to a stronger understanding of current middle-grades sports literature in general.

Title: Clicking to Connect: A Qualitative Study on How Personal Engagement with Professors Enhances Online Learning Outcomes
Authors: Sana Shahid
Affiliation: Utah State University
Abstract: The importance of emotional and personal engagement in online teaching has been recognized as a key factor in improving learning outcomes. However, there is a gap in the literature regarding the specific strategies instructors use to create such engagement and their impact on student achievement. The objective of this study is to examine how instructors who incorporate emotional and personal engagement into their online teaching practices achieve better learning outcomes. The study uses a qualitative approach, beginning with a non-participant observation of 10 "exemplar" courses at Utah State University and a review of existing literature. Interviews with exemplary instructors and students will follow further to explore the strategies employed by instructors. Initial findings suggest that these instructors utilize personal engagement techniques, such as sharing personal experiences, actively supporting students within the Learning Management System (LMS), offering post-course availability, and providing guidance on non-curricular matters. These strategies foster a supportive learning environment where students feel valued beyond their role as learners. Further data from interviews will offer deeper insights into the effectiveness of these strategies.

Title: Living the Kodály Concept Beyond Elementary: An Historical Case Study of Rosalind Hall's Legacy in Secondary Choral Education
Authors: Heather Christiansen
Affiliation: Univ. of Utah
Abstract: The Kodály Concept emphasizes teaching music literacy through the music of the student's own culture (Gault, 2016). While its application at the secondary level has been explored by some teachers and researchers (e.g., Houlahan & Tacka, 2023), in the U.S., it is primarily associated with elementary music education. However, many students in the U.S. begin formal music education in middle school or later, leaving a gap in Kodály applications for older learners.
This historical case study examines how Rosalind Hall, a Welsh-born music educator, successfully applied the Kodály Concept in secondary choral settings. Hall taught secondary choirs at the Waterford School in Sandy, Utah, before becoming a professor at BYU. I analyzed artifacts, including lesson plans, a scope and sequence outline, and assessment materials, to understand how she implemented the Kodály Concept and structured her curriculum. Personal

interviews with Hall provided insight into her experiences, while interviews with Jean Applonie, a colleague, and Jason Hewlett, a former student, triangulated the findings.
This study offers valuable implications for secondary educators in regions like Utah, where elementary music education is not mandatory, or where students often have limited access to formal music instruction. By providing a late entry point into music, this research fosters greater accessibility to music classes, ensuring more students have opportunities to develop musical literacy and experience the benefits of music education.

Title: Transitions into Leadership: Peer Leadership Experiences of First Year Administrators.
Author: Douglas Stump
Affiliation: Southern Utah University
Abstract: In K12 schools, entry level leadership positions can include team leader, curriculum director, assistant principal or dean of students and often come through the appointment of teachers currently working within the school. Teachers who accept these initial leadership positions experience a transition in scope of work and a shift in relationships among fellow teachers, including a unique set of challenges setting and enforcing policy and protocol with their peers. This presentation shares the findings of a qualitative field study of 9 first-year administrators across three states - Utah, Ohio and New York – to better understand the experiences of first year peer leaders and to inform ethical leadership induction and mentorship practices.

Engineering
Oral

Title: Launch and Analysis of High Altitude PICO Weather Balloon
Authors: Raine Pratt, Sadie Schenk, Taylor Davis, Ali Syyed Siahpush
Affiliation: Southern Utah University
Abstract: As part of a Mechanical Engineering Capstone project at Southern Utah University (SUU), we successfully launched a PICO helium balloon from Cedar City, UT. The mission goal was to analyze and predict the static and dynamic behavior of the balloon throughout its ascent. Using One-dimensional (1D) theoretical models, we predicted parameters such as temperature, pressure, altitude, ascending velocity, floating altitude, and buoyancy force. WSPR (Weak Signal Propagation Reporter) tracking methods were used to monitor the balloon's location and showed that the balloon reached a maximum altitude of 39,000 feet, closely matching our predicted values. The strong correlation between our theoretical analysis and launch data validated our predictive models, demonstrating the effectiveness of our approach. The procedure for balloon preparation and launch was developed and documented. This project serves as a foundation for future high-altitude balloon research and engineering applications at SUU.

Title: Slab of Ice Melting Rate Due To Natural Convection and Thermal Radiation
Authors: Tim Amodt, Ali Syyed Siahpush
Affiliation: Southern Utah University
Abstract: This paper discusses the effects of natural convection and thermal radiation on the melting rate of ice. It aims to validate the results of a previously conducted experiment performed at Southern Utah University, improve the experiment by considering radiation effects, and create a model that can accurately predict melting rates for vertical and horizontal orientations. The vertical setup had an experimental melting rate of 280 g/hr. The theoretical results from natural convection plus two different cases of thermal radiation heat transfer were 285 g/hr for a large enclosure and 281 g/hr for a two-surface enclosure. The horizontal setup had

the melting experimental result of 287 g/hr, with theoretical melting results of 282 g/hr for a large enclosure and 277 g/hr for a two-surface enclosure. A sensitivity analysis was performed for the heat transfer coefficient and temperature deviations from experimental values. The heat transfer coefficient linearly changes with the mass flow rate. Increasing temperature deviations increased the mass flow rate error by roughly 4% per one-degree deviation. Sources of error were considered, and the greatest melting rate error source was from using a heat gun to extract the ice and human error while recording data.

Title: Low-Cost Dual-Band Radar System for Drone Detection and Tracking with AI-Driven Target Prioritization

Author: Ahmed Amin
Affiliation: Southern Utah University

Abstract: The rapid proliferation of unmanned aerial vehicles (UAVs) in both civilian and military domains has elevated the need for robust detection and tracking solutions to mitigate potential threats. This research introduces a cost-effective, dual-band radar-based drone detection and tracking system that integrates a Software-Defined Radio (SDR) platform with a 24 GHz radar module for enhanced performance. The proposed system employs a hybrid radar architecture, utilizing both Frequency Modulated Continuous Wave (FMCW) and Doppler radar techniques to achieve accurate detection and real-time tracking of UAVs.

An AI-driven signal processing approach is implemented to analyze and classify detected objects using a deep learning-based fusion model. This model leverages both Doppler signatures and micro-Doppler effects to distinguish UAVs from clutter and other airborne objects, reducing false alarm rates and improving overall detection accuracy. The system architecture also incorporates low-cost solutions, demonstrating the feasibility of achieving high-performance detection with limited resources.

The system is validated through a series of real-world field tests conducted under diverse environmental conditions and with different drone types. Key performance metrics, including detection range, accuracy, false alarm rate, and response time, are evaluated to assess the effectiveness of the system. This research contributes to the field of radar signal processing and AI-driven threat detection by providing a scalable and adaptable solution for UAV surveillance, highlighting the potential for low-cost, high-accuracy radar systems in real-world applications.

Title: Heat Transfer Experiment: Top-Down Spray Type Direct Evaporative Cooler

Authors: Erik Berthoty, Ali Syyed Siahpush
Affiliation: Southern Utah University

Abstract: This project was a continuation of the downdraft evaporative cooler that was designed at Southern Utah University (SUU). The purpose of this research was to improve upon the existing design of the direct evaporative cooler by simplifying the heating system within the cooler, as well as exploring different water droplet sizes and their cooling performance. The relative humidity and dry bulb temperatures at the inlet and outlet of the cooler were measured when evaluating the performance of the evaporative cooler. Psychrometric charts and equations were used to predict the necessary flow rate of the water to yield a reasonable cooling performance while keeping the relative humidity close to the comfortable range of 30%-60%. It was determined that a nozzle configuration comprised of 2 parallel nozzles performed well. It cooled the air from 35.6°C to a temperature of 22.9°C with a relative humidity of 63.3%.

Title: Critical Radius of Insulation For a Cylindrical Copper Tube

Authors: Taylor Davis, Raine Pratt, Brock May, Ali Syyed Siahpush
Affiliation: Southern Utah University

Abstract: This study evaluates the critical radius of insulation for a cylindrical copper tube. The

critical radius of insulation represents the point of maximum heat transfer rate. The location of the critical radius can be evaluated using the thermal conductivity of the insulation and convection heat transfer coefficient as k/h. A constant temperature bath, copper tube and insulation was used in this experiment to determine the critical radius of insulation. The theoretical value for the critical radius was calculated to be 96.41mm. The raw data collected did not provide an accurate reading of the critical radius at first. After considering how much the insulation was compressed during the test, the experimental critical radius was recorded to be 97.94 mm which falls within 1.58% margin of error of the theoretical value.

Title: Heat Transfer Analysis of Melting Rate of Ice In Clay and Paper Mixture Containers
Authors: Kailee Richman, Ali Syyed Siahpush
Affiliation: Southern Utah University
Abstract: Locally available and biodegradable insulating material decreases cost and environmental footprint compared to synthetic materials. This experiment aims to determine the effectiveness of a shredded paper and clay mixture for use as biodegradable insulation. Two similar containers were constructed from locally available Kaolinite and Illite clay, with one container including shredded paper. The mixture's insulating capability was determined by measuring the rate at which a suspended cylinder of ice melted inside the container. The equations for convection and radiation heat transfer, and latent heat of fusion provided a theoretical melting rate of the ice cylinder for comparison. Also, comparing the results of the clay container experiment to the results when using a Styrofoam cooler showed that the clay was a less effective insulator than the Styrofoam, but still maintained a cold temperature and reduced the ice melting rate as compared to an ambient environment. The container with the shredded paper mixture had a lower thermal conductivity than pure clay. It was concluded that a clay and paper composite presents a cheaper option than Styrofoam while still being an effective insulating material.

Title: Experimental Indirect Evaporative Cooling Fridge
Authors: **Lucas Hatch**, Ali Siahpush
Affiliation: Southern Utah University
Abstract: Evaporative cooling is a concept everyone has experienced but not many people fully understand or consider it. At Southern Utah University, undergraduate research was performed to recreate and validate a fridge designed by students at the University of Calgary that used indirect evaporative cooling to cool the air temperature in an insulated container. Based on the very limited information available from University of Calgary and internet, attempting to recreate and test their system showed little to no change in temperature. Therefore, different measures were added to improve their design. This modified system was able to better cool air by incorporating a fine mist that sprayed directly over the coils. The results from each test were included for comparison.

Humanities, Philosophy and Foreign Language
Oral

Title: "Beckett, McCarthy, and the Boundaries of Dystopia"
Author: David A. Hatch
Affiliation: Southern Utah University
Abstract: Utopia was not originally an island, as the founders altered fifteen miles of isthmus to create the island and control the border. By extension, this allowed them to control the population, where an ideal number could be maintained by removing or importing people from the mainland. These types of boundaries have been essential to our understanding of the

qualities of a utopia or dystopia, the differences between the two, and the cultural criticism resulting from these narratives.
This presentation will explore the concept of dystopian boundaries in Samuel Beckett's Endgame and Cormac McCarthy's The Road. These works share stylistic and thematic similarities, but in each case the author also displays a dystopian world in the process of a slow spin down to a dark, ash-filled end. This paper explores the qualities and messages of these works with an eye on how the two help us define dystopia.

Title: "John Wesley Powell, the Grand Canyon, and the Myth of Native Self-Imprisonment"
Author: Evan Mahler
Affiliation: University of Utah
Abstract: In 1869, one-armed Civil War Veteran John Wesley Powell set out from Green River, Wyoming, with a rag-tag crew to map the Great Unknown – the last large unmapped space within American jurisdiction – also known as the Grand Canyon. Powell's "true" account of this journey, Exploration of the Colorado River and its Canyons (1875), operates as a hero's tale of a dangerous (somewhat successful) expedition. This paper focuses on Powell's consequential myth-making in relationship to his ascending political power and the passage of the Indian Appropriation Act of 1871, marking the end of treaty-making between Native Americans and the U.S. Government. To elucidate this relationship, this paper works to position Powell's language within a "rhetoric of empire" (Spurr), going on to focus on Powell's "carceral imagination" (Fludernik 39) as he details his elaborate myth of Native self-imprisonment, in tandem with his own "imprisonment," within the Grand Canyon.
Contemporary scholarship tends to name Powell's depictions of Native peoples (and the devasting effects of the policies he endorsed) as they are: cartoonish, belittling, and racist. With this in mind, recent scholarship seems to shy away from critically analyzing racist texts depicting Indigenous groups. This paper, instead, analyzes a specific passage about Native people, not as a study of Natives, but as a study of the literary world Powell has written into being. This world is a reflection, not primarily of the people or places he encountered, but of himself: his opportunities, ambitions, power, and his relationship to the empire he helped establish.

Title: "Faith and Feeds: The Impact of Social Media on Voter Attitudes and Presidential Support in the USA"
Author: Aggrey Willis Otieno, Ph.D.
Affiliation: Utah State University
Abstract: Despite the significant impact of religious affiliation on voting patterns in the U.S., the pervasive influence of social media - engaging 246 million users, or 72.5% of the population - on shaping public opinion and political engagement, particularly through religious-themed messaging, remains largely unexplored. This research investigates how different social media platforms influence voters' political attitudes and support for presidential candidates. It examines the effect of frequent engagement with religious messages on social media on voter backing for these candidates. Additionally, the study analyzes the role of religious leaders in shaping their social media followers' support for presidential candidates. It also assesses the impact of religiously themed disinformation on social media on voter support for specific candidates. Finally, the research explores the relationship between trust in social media platforms and user engagement in efforts to mitigate religious-themed political disinformation. To achieve these objectives, the study used snowball and convenience sampling to collect a sample size of 890 respondents. The gathered data was analyzed using descriptive statistics and regression analysis with SPSS version 29.0 to investigate the relationships between the variables of interest. The findings provide valuable insights into how religious messages on social media influence voter

behavior during presidential elections, contributing to the development of strategies to mitigate the spread of disinformation and enhance the democratic process. The study also discusses its limitations and offers recommendations for future research.

Title: "Unmasking and Taming the Social Media Mental Health Concerns Haunting Utah's Kids"

Author: Aggrey Willis Otieno, Ph.D.
Affiliation: Utah State University

Abstract: Depression and suicide represent critical public health challenges, with over 40,000 Americans succumbing to suicide annually, incurring approximately $44.6 billion in combined medical and work loss costs. In Utah, suicide is the second leading cause of death among individuals aged 10 to 24, prompting extensive research into the potential link between social media use and rising adolescent distress. Despite 95% of Utah teens being active on social media, there is a notable lack of studies addressing adverse outcomes such as cyberbullying, social comparison, body image issues, depression, anxiety, and their connection to suicidal ideation.

This study employs a multivariate regression analysis on data from 1,206 active social media users in Utah, exploring the frequency and nature of social media use, the impact of social comparison with influencers and peers, the correlation between digital markers in social media posts and mental health conditions, and the role of family-based interventions for at-risk adolescents. Public perceptions of social media regulations were also evaluated.

The findings reveal the dual impact of social media on adolescent mental health, highlighting both its positive and negative effects. Adolescents are particularly vulnerable to social comparison processes, which exacerbate issues related to body image, self-esteem, anxiety, depression, suicidality, and overall mental health. The study underscores the complex relationship between social media use and adolescent mental health, emphasizing the need for targeted interventions and policy measures to mitigate the adverse effects of social media on young individuals. The implications and limitations of the study are discussed, advocating for comprehensive strategies to address these critical issues.

Title: "Then I Remembered:' Joan Didion on Greif: Minimalism and Phenomenology."

Author: George Dibble
Affiliation: Brigham Young University

Abstract: My presentation will be examining Joan Didion's autobiographical & The Year of Magical Thinking; focusing on the second chapter to analyze how Didion explores the phenomenology of grief through sentence variety, minimalist literary style, and rhetorical questioning. By investigating these stylistic elements, I will interrogate Didion's capacity to translate the emotional complexity of loss into a textual experience that resonates with readers. Drawing parallels with Raymond Carver's poem "Grief," the analysis emphasizes the challenge of articulating grief to an audience who may or may not have experienced such loss firsthand. This raises critical questions: can grief, a deeply personal and disorienting experience, be authentically communicated to readers, or does it remain ultimately inaccessible to those untouched by personal loss? I argue that Didion's stylistic choices simulate the chaos and intensity of grief, pulling readers into her emotional landscape, and then, the silence of realization. For example, her strategic use of sentence variation mirrors the abrupt shifts in her psychological state during pivotal moments, such as her husband's sudden collapse. Brief, fragmented sentences replicate panic, while longer, reflective ones convey moments of disorientation. These patterns, rooted in literary minimalism, resonate with critic Robert C. Clark's observation that restraint in language heightens scenes of intensity, as seen in specific works of Cormac McCarthy. Furthermore, Didion employs a series of certain rhetorical

questions to illustrate her psychological fragmentation and, later, to signify moments of clarity. These devices, coupled with her sparse prose, evoke Søren Kierkegaard's concept of anxiety, which can manifest as both muteness and a scream. This duality underscores the paradox of grief as both present and absent; tangible yet elusive. I will be using French Philosopher Maurice Merleau-Ponty's idea of the "phantom limb" within grief phenomenology to discover the strategies and effectiveness of Didion's evocation of her intense loss and its consequences.

Title: "Race off the Agenda: The Visibility and then Invisibility of Black Americans in the Chicago Tribune in 1859 and 1952"

Author: Thomas C. Terry, Ph.D.
Affiliation: Utah State University

Abstract: The presence of Blacks in U.S. history is the overarching theme in an analysis of the Chicago Tribune during two, one-week periods, approximately a century apart, in 1859 and 1952. Each issue during the February 11-18, 1859, period contained numerous articles discussing the most burning issue of the time, inarguably the most important issue in American history after the Revolution: Slavery. Just under 100 years later, in 1952, the issue could have been Civil Rights, certainly should have been, had the Tribune set the agenda on civil rights. The study period, November 23-40, 1952, preceded Brown v. Board and subsequent Supreme Court desegregation decisions. Except in the sports pages, and scarcely even there, the Black was Ralph Ellison's "invisible man." In terms of coverage in the Chicago Tribune, the plight of Blacks, so obvious in every column of the paper in 1859, was just as obviously absent in 1952. It was as if the white America that owned the newspaper and dominated the political system, had decided the only problem that ever faced Blacks had been slavery. Once emancipated, the problem simply ceased to exist. The purpose of this study is to determine whether Chicago Tribune readers could have foretold in the pages of that newspaper the coming of Civil War in the late 1850s and the Civil Rights movement in the early 1950s during two, one-week periods, February 11-19, 1859, and November 23-30, 1952. And the answer is "no."

Title: "Quality of Life on an 'Indian' Reservation: A Comparative Analysis of the Navajo Nation and General U.S. Population"

Author: Adam Nez
Affiliation: Snow College

Abstract: As of today, there are 574 federally recognized Native American tribes in the United States. Out of this 574, there are about 326 federally recognized Native American reservations. Life differs from reservation to reservation, but all continue to struggle to keep up in modern America. It is my intention to bring to light the disparities in the quality of life on Native American reservations, particularly in terms of healthcare, education, and economic opportunities. I will more specifically be researching the reservation I come from, the Navajo Nation.

Diné Bikéyah, or the Navajo Nation, is a sovereign nation within the U.S., located just by the four corners area in between the states of Utah, Colorado, Arizona, and New Mexico. This is the homeland of the Diné, or referred to as the Navajo. I come from the reservation and have seen and experienced the disparities that plague this nation. I have also lived off the reservation and have noticed major differences in the quality of life that many overlook. Major differences can be found in the nation's education system, healthcare system, and economical situation. These will be the main pillars of comparison with the nation that surrounds the reservation, the United States. By comparing these disparities, I hope to bring to light the difference in quality of life between one of the largest Native American tribes, and the general population of the United States.

Title: “Forced Displacement and Assimilation: a Long-lasting Legacy for Native Communities”

Author: Emerson Hackford
Affiliation: Snow College

Abstract: This presentation will be regarding the forced displacement and assimilation of Native Americans. Outlining elements in correspondence to cultural identities, to emphasize the resulting disconnection from ancestral lands causing lasting impacts within Indigenous communities.

As a mixed Uintah Band Northern Ute from the Uintah and Ouray Reservation, I intend to maintain focus on prior historical happenings in correlation to severing ties Native Americans hold to their ancestral homelands and identities within a cultural context.

Historical happenings regarding the displacement of Indigenous people from their ancestral homelands will be entailed. Cultural and spiritual belonging is relative to the ancestral lands in which Indigenous communities inhabited but now serves to be misconstrued. One may seek a correlation of such to restricting access to spiritual lands and more which have maintained means for essential survival for prolonged generations of Indigenous peoples. Relative to the context of assimilation, reference to Native American boarding schools, the Dawes Act, etc will be included. It will serve to provide structure for emphasis on the topic. All information to be entailed will give a better understanding of disrupted cultural identity, with factors that correlate severing Indigenous spirituality, and social-psychological factors at play today.

My resulting presentation will be a culmination of periodicals from psychologists and historians, and articles from journalists seeking to emphasize the aspects of my topic. Important for evident truth to my presentation, highlighting Indigenous viewpoints from Native Organizations, as well as first-hand accounted sources of experience will be elevated throughout. This all culminated in a means to create visibility of history long ago, linked with factors of present times that Native communities face. As the cause and effect entailed within this topic are often misrepresented or shrouded with invisibility.

Title: “From ‘Abominable Snowman’ to ‘Yeti Anila:’ Exploring Yeti Mythology Across Himalayan Cultures”

Author: Dawa Dechen Lama
Affiliation: Snow College

Abstract: The Yeti, the Abominable Snowman, is a mythical yeti with deep and lasting ties in Himalayan mythology and folklore. The beast, a mythical ape-man living in Asia's most inhospitable and most remote hills, managed to mesmerize everyone in the world into thinking about it. Yetis, however, are not supposed to be typical mythical creatures; they are much more a signifier of wonder, an object of veneration, and a metaphor for nature in Himalayan cultures. What I propose to explore in the following pages is the cultural identity of Yeti, particularly with relation to the phrase "Yeti Anila," which evokes a concept that reflects a deeper and more respectful signifier for such a mythical creature. Using "Anila," a revered name for a figure in Tibet, the Yeti becomes signifier not of terror, but reverence and admiration; not a monster to be feared but rather full of reverence and awe. The core question that I will ask is this: what might be Yeti's cultural and spiritual significance for these Himalayan cultures, particularly "the label" "Yeti Anila"? By using this "label," Anila-a term of respect for a learned Buddhist through my inquiry-I will challenge stereotypical representations of Yeti as a monster in Western interpretation.

In conclusion, I shall present in my work how "Yeti Anila" recontextualizes and reinvents Yeti in a venerable way and also transforms him into a protective god of the hills, not as just a cryptid but as an obvious presence with which to revere and perhaps pray for or even speak with in human terms. Ultimately, I will show how in such a study Yeti mythology is a

living and continuing ongoing phenomenon and cultural artifact in contemporary times.

Title: "Across the Gulf: Land, Memory, and Identity in northern Guatemala and the US South"

Author: Fernando Nieto Montaño, Jr.
Affiliation: Snow College

Abstract: Relationships with land have long defined human memory and group identity, and continue to do so now, as evidenced, for example, in recent controversies over US efforts to (re)name the Gulf of Mexico. In this presentation, I will explore relationships between land, identity, and memory in two specific communities in Louisiana and Guatemala, especially in terms of aspects of both natural and built environments. I will be focusing on the Whitney Plantation, along the bank of the Mississippi River in southern Louisiana, as well as the classical and contemporary Mayan community of Uaxactún, Guatemala. In each place, the natural environment has been altered over time, leaving, among other impacts, distinct human feelings and other relations with the land.

For example, the Whitney Plantation we have today is not the one that was operated into the mid 1800s. It is now an educational venue, exceptional among other plantation tours, teaching visitors about how enslaved people were treated on the plantation. At the southern end of the Gulf, Uaxactún, Guatemala is area abundant with jungle as well as a small human community today. The Uaxactún that is presented to visitors today has changed drastically from the classical Mayan period. These areas that have been built, while they may be experienced as "natural" by many of us, were once lands with dramatically different kinds of human interactions and interventions. I believe the built environment and the natural environment work in correlation with each other in shaping the identities and memories that reside there.

Title: "Nights at the Museum: Agroforestry and Cultural and Ecological Patrimony in the Maya Biosphere Reserve of Northern Guatemala (a field report, in haibun style)"

Author: English Brooks, Ph.D.
Affiliation: Snow College

Abstract: This presentation will discuss the community of Uaxactún, in the Petén region of northern Guatemala, in relation to larger conversations on and increasing attention to decolonizing museum collections and curation, and to traditional ecological knowledge (TEK)/Indigenous science. In particular, I will focus on some of the ways in which these forms of knowledge and management of cultural and ecological heritage mediate the terms upon which local Indigenous and Mestizo communities in the Americas engage with larger colonial/global systems of knowledge and trade.

For instance, among the distinguishing features of Uaxactún is the unique community-managed forest concession arrangement it maintains within the Maya Biosphere Reserve (the largest tract of contiguous, undisturbed rainforest in the Americas, north of Amazonia). The agroforestry crops this community manages in the region include Manilkara zapota, Pimenta dioica, Brosimum alicastrum, Chamaedorea oblongata, and a number of tropical hardwoods for lumber and other wood products. My orientation to this community's relationship with these forest products, their places in local and global cultures and economies, and within history, is informed by the theoretical premise that coloniality and modernity are mutually defining concepts, as demonstrated by thinkers like Aníbal Quijano and Walter Mignolo. This is further defined in the work of Silvia Rivera Cusicanqui and María Josefina Saldaña-Portillo, who articulate some of the fundamental roles played by Indigenous relations with biotic communities of the Americas, and Indigenous modes of production, in shaping the material basis for modernity.

Finally, I wish to relate these issues of forest management and conservation, to analogous questions of management and conservation of cultural patrimony (artifacts, architecture,

infrastructure, etc.) in the region, and how these are informed by concepts of heritage and memory. My presentation approach will also occasionally integrate haiku/haibun style verses, in order to better illustrate various central concepts along the way.

Title: "A PEG Tube, Who Decides?"
Authors: Kade Miller and Debbie Olsen
Affiliation: Snow College
Abstract: Our case surrounds a man named Greg Strong that lives in a care facility. Mr. Strong has down syndrome which has resulted in his being somewhat intellectually disabled. Recently Mr Strong has stopped eating and drinking altogether. The staff of the facility has inserted a nasal feeding tube to combat this issue, however he continues to pull the tube out. Family members and the healthcare team have discussed placing a PEG tube into Mr Strong's stomach. Some of the caregivers are concerned that PEG tube surgery may be too burdensome for an older man to go through that type of procedure. Others think it is the best option in order to prolong time to research a better solution for his dangerous levels of malnourishment.
The main questions we have to answer are "How can you morally solve the issue of a person that is incapable of reasoning refusing to provide themselves with the nourishment their body needs?" and, "When someone incapable of reasoning needs a surgical operation, who decides what is to be done?" To answer the first question we have to first look at what a PEG tube is and how it works. Are there any other alternative solutions? If so, what are they and how do they work? We then need to assess the risks involved and whether they are greater than the ones imposed by the situation. We have to decide who ethically gets to make decisions for a person who doesn't have the ability to reason. We see these questions as particularly important because if we don't know and understand our possible solutions, we can't measure the morality of those solutions. We recommend the most moral course of action is to go through with the procedure and place the PEG tube.

Kinesiology and Health Sciences
Oral

Title: Gaps in Research on Women with Autoimmune Diseases
Author: Emma Smith
Affiliation: Utah Valley University
Abstract: This research aims to understand gaps and inadequate research for women aged 18-65 with autoimmune disorders. The average woman in the U.S. waits over a year for a diagnosis of an autoimmune disease and even longer for their treatment. Women have a 50% greater chance of experiencing adverse effects from their medication as their male counterparts. Key events that have occurred in research of women's autoimmune diseases are the genetic studies of autoimmune disease and links to hearing disorders. Political advancements in Congress led to the creation of an office of autoimmune disease research in 2023. One key finding is a study conducted by Stanford University. This study examined genetics and autoimmune diseases in 2022. What they found is that the female XX chromosome is associated with proteins that trigger autoimmune diseases. As a result, 80% of autoimmune patients are women. Women also experience adverse effects from medication twice as often as men. This is a result of many medications being tested on the male body but not the female body. 5.6% of women with premature ovarian insufficiency had at least one severe autoimmune disease in the United States. Changes need to engender knowledge of differences in women's symptoms in order to build empathy in healthcare. This aims to build awareness and knowledge to be open to studying and talking about women's bodies.

Title: Smart Tools, Smarter Teaching: AI Challenges and Opportunities for Nursing Faculty and Academic Librarians

Author: Tavish Bell
Affiliation: Utah Tech University

Abstract: Artificial Intelligence (AI) is rapidly transforming education, especially within health-related fields like nursing. AI-driven tools such as virtual clinical simulations, automated feedback systems, and predictive decision-making support offer unique opportunities to enhance critical thinking and clinical preparedness in nursing education. However, the integration of AI introduces challenges, including ethical concerns about bias, privacy, and the preparedness of both faculty and students to utilize these technologies effectively. This study, set at Utah Tech University investigates the integration of AI within nursing curricula, examining the experiences and challenges nursing faculty face in adopting these tools. With its polytechnic mission and emphasis on applied technology, Utah Tech provides a unique environment to assess AI's impact in an educational setting deeply connected to real-world applications.

Title: Musical (Department) Chairs: The Health Impacts of Serving as a Rotating Department Chair

Author: James Bemel
Affiliation: Utah Valley University

Abstract: Serving as a department chair in higher education has been called probably the most important, least appreciated, and toughest administrative position in higher education. Department chairs are tasked with a myriad of duties and responsibilities, including those related to department governance, student affairs, external communication, budget and resources, professional development, and faculty affairs. Within academia, there are primarily two methods by which a department chair is selected. The first is through the election of a department chair from the current department faculty. That individual serves for a specific period of time and is then either re-elected or replaced by another department faculty member. The second method is through the hiring of a full-time department chair, from inside or outside the department, and that individual serves in the position until released from employment or moving to another position. Most universities choose the rotating chair system, promoting from within the department and rotating the role among faculty, each filling an approximate three- or four-year appointment, then returning to the rank of faculty after term expiration. Since many universities select department chairs from current department faculty, the potential exists for negative impacts on the chair's physical, psychological and social health as they transition into the department chair role fulfilling those duties, then transitioning back to faculty status as another colleague assumes the role of department chair. This study examined those health effects on current and former department chairs and the results were staggering with significant impacts to all three dimensions of health.

Title: Exploring the Impact of COVID-19 on Smoking Cessation: A Comprehensive Literature Review

Author: Linnette Wong
Affiliation: Weber State University

Abstract: The COVID-19 pandemic has significantly influenced smoking cessation behaviors in the United States, with health concerns, stress, and awareness of smoking-related risks playing key roles in smokers' attempts to quit. This literature review synthesizes findings from multiple quantitative and qualitative studies conducted during the pandemic, examining how COVID-19 affected smoking behaviors, motivations for cessation, and the use of cessation resources. Key themes identified include the heightened awareness of the respiratory risks associated with smoking, the psychological impact of stress, and the limited yet increasing use of cessation

resources. Smokers, particularly those with pre-existing health conditions, were motivated by fears of severe COVID-19 outcomes, yet many struggled with relapse due to stressors such as isolation, financial instability, and lifestyle disruptions. Despite some success in motivating quit attempts, barriers such as lack of access to resources and demographic differences (e.g., age, socioeconomic status) limited the long-term effectiveness of cessation efforts. The review also highlights gaps in the literature, including the need for longitudinal studies to track long-term cessation success and relapse, and calls for targeted health promotion campaigns that address both behavioral and emotional challenges. Overall, this review provides important insights into the complex factors influencing smoking cessation during the pandemic and suggests avenues for future research and public health interventions aimed at improving smoking cessation outcomes, particularly in high-risk populations.

Language-and Literature
Oral

Title: Ethical Editing: Care Ethics in Technical Editing Pedagogy
Authors: Rachel Bryson, Thabata Fay, Zabrina Le, Emmerson Martin, and Cora Romero
Affiliation: University of Utah
Abstract: Technical Editing (TE) is a core course in Technical Communication programs, preparing student editors-in-training for academic and workplace editing contexts. While many TE instructors incorporate discussion of general ethics into their curriculum, little scholarship exists advocating specifically for instruction in care ethics. Care ethics, as a framework that emphasizes human interdependence and relationality, should be part of how we teach and learn about TE. Particularly in the age of Generative Artificial Intelligence, enacting an ethic of care is one way for technical editors to demonstrate the human value of editing work, which encompasses far more than just copyediting or proofreading.
This presentation advocates for focused instruction on relational care ethics in inclusive editorial pedagogy. This panel will highlight the experiences of a TE instructor and four undergraduate student editors in researching and enacting empathy and care in editorial work. Participants in this session will learn strategies for implementing empathy and care ethics into TE pedagogy, as well as the complications of enacting these strategies. Ultimately, the panelists argue that editing work is fundamentally relational, and that a care ethics framework can enhance editing relationships and processes.

Title: To Every Fish a Fantasy: The Little Mermaid, Disability, and the Right to Love
Author: Miranda Slusser
Affiliation: Snow College
Abstract: Since its inception, The Little Mermaid has captured the imaginations of audiences across the world, inspiring a multitude of retellings. This essay looks closely at how three versions of the story, including the original fairy tale by Hans Christian Anderson, the Disney movie, and Miyazaki's Ponyo, all play into ableist narratives as "mermaidness" acts as a metaphor for disability. In all three iterations, the titular character must escape her nonnormative body to achieve acceptance, love, and ultimate happiness. Anderson requires his protagonist to trade her "mermaidness" for pain and muteness. Throughout the story, she is treated by the human world and even her love interest as more like a child, an exhibit, and an entertainment than a fully realized woman. Her sacrifice is unseen, and she remains separated from both society and love. In order to make the story more acceptable to a modern audience, Disney cures Ariel of both her muteness and her fins—i.e., her difference--in order for her to find her happy ending with her prince. And Ponyo, which avoids some of the most excessive ableism of the other two stories as she finds love even in her alternative form still requires the mermaid to erase

her non-human traits to achieve full acceptance and audience satisfaction. In identifying these patterns, this essay shows how stories often exclude disabled people from representation and perpetuate notions that only the abled are capable of finding full acceptance, love, and a happily ever after.

Title: An Arrangement of Cogs: Speculative Form and Reality in Alan Moore and Dave Gibbons' "Watchmen"

Author: Ezra Stein
Affiliation: Southern Utah University

Abstract: What can we learn from the way panel form and visual content interact in comics that are also works of speculative and political fiction? Alan Moore's Watchmen utilizes a structure wherein each page is comprised of a 3x3 grid of evenly sized panels, but he does occasionally break from this structure, combining panels to make them larger. In this essay, I will argue that Moore breaks from his established grid structure in order to accommodate the speculative elements of the comic, specifically the existence of superheroes and villains in the comic's world. When Moore introduces a new superhero, he will often do it in one of these larger combined panels, demonstrating their breaking from the form of established reality. In this paper, I will explore how within the comic's opening chapters, Moore and Gibbons visually introduce the comic's superhero team using this visual motif. We can see for example one prominent instance of this in the character Dr. Manhattan's introduction, which presents him as three panels tall and emphasizes his size when compared to the more ordinary characters. For the sections in between chapters, Moore breaks from the comic form entirely, presenting in-world texts as prose. I will argue that since these texts are understood to be a part of the reality of Watchmen, they do not meet the definition of being speculative to the characters and are therefore not presented in the previously established style; they instead use academic language and refer to superhero ephemera familiar to audiences of the real world. My paper will ultimately show that Alan Moore and Dave Gibbons use the formal elements of the comic medium not only to enhance the elements of the work that fit into the medium of speculative fiction, but also to demonstrate said elements application to reality.

Title: "A Lotus Flower in the Mud": Woman as Dialectical Image in 19th-century Japan and America

Author: Coleman Numbers
Affiliation: Brigham Young University

Abstract: In 19th-century Japan and the United States, many prose writers wrote novels and short stories that documented modernization's liberatory and oppressive consequences for women. Two such writers—Edith Wharton in America and Higuchi Ichiyō in Japan—both examine how women's social and economic roles are shaped by accelerating transformation; however, despite the scholarly focus given to each individually, these writers haven't yet been put into conversation.

Reading these authors together clarifies the capitalist mechanisms that distorted women's social and economic opportunities across continents. I will focus on Higuchi's short story "Nigorie," which follows O-Riki, a low-class Japanese prostitute, and Edith Wharton's novel The House of Mirth, which tracks socialite Lily Bart's fall from high society. While Wharton's novel and Higuchi's story address different socioeconomic strata in different cultures, both narratives feature heroines who face the exhaustions of what Wai Chee Dimock has called "a system of debasing exchange"—a system that liquidates women's bodies for monetary and social remunerations. O-Riki and Lily Bart meet the predations of this system, which are fueled by a rapid pace of change in their respective societies, in ways that reveal how 19th-century was a global phenomenon with implications for women in both hemispheres. Specifically, this essay

finds that Lily Bart and O-Riki function as living versions of Walter Benjamin's "dialectical image" subjects who are aware of the dialectic processes that objectify and fetishize them.

Physical Sciences
Oral

Title: High-Velocity Pulsar Kicks via Anisotropic Neutrino Emission
Authors: Tate R. Thomas, Alexander M. Panin
Affiliation: Utah Valley University
Abstract: Observations reveal that some neutron stars (NS) exhibit high velocities, reaching over 1000 km/s in some instances. This cannot be attributed to the orbital velocity of the NS around our Milky Way galaxy, as it is around 250 km/s on average. The origin of this phenomenon, known as a pulsar kick, is not fully understood and remains a subject of debate among astrophysicists.
During NS formation, the rotation and strong (potentially asymmetric) magnetic field of its progenitor star may result in an asymmetric collapse of the star's core plasma. If this is the case, we might anticipate the formation of dense neutron matter slightly offset from the center of the forming NS, which will be the source of subsequent neutrino radiation. This offset results in an imbalance of neutrinos reaching opposite sides of the NS, creating a net momentum of neutrino radiation into space and propelling the NS in the opposite direction.
Due to strong interactions of high energy (~10-100 MeV) neutrinos with dense neutron matter, we expect the neutrinos to propagate throughout the NS in a diffusive manner. Hence, we used a diffusion model to investigate neutrino emissions from an offset source and analytically proved that it will result in significant anisotropic emissions. From this, we derived a novel linear relationship between the velocity of a pulsar kick and the offset percentage (relative to NS radius), with the proportionality constant dependent solely on the average energy of the formed neutrinos. This formula predicts kickback velocities consistent with observational data from small asymmetries (2-7% offset for 100 MeV neutrinos). Our findings suggest that an offset neutrino source can indeed account for significant recoil velocities and thus, it seems a full theory explaining pulsar kicks should most certainly include anisotropic neutrino emission as a primary cause.

Title: Gravity Solutions in the Cloud: A Repository of General Relativity Computations
Authors: Morgan Maxwell, Joseph Ray, Maria J. Rodriguez, Luis Fernando Temoche
Affiliation: Utah State University
Abstract: The goal of this project is to create a public repository that provides access to important software related to differential calculus and the general relativistic solutions of Einstein's equations. This unique repository, in Wolfram coding language , aims to ensure reliable access and maintenance of essential software packages, including the EDCGRTC code, while providing an introduction to the physical properties of gravitational systems within this framework. Additionally, we will perform detailed computations on gravitational solutions to Einstein's equations to extract key observables, such as the location of singularities in these systems and the computation of their associated conserved charges.

Title: Gravitational tidal deformations of rotating black holes
Authors: Glazer, Daniel; Joyce, Austin; Rodriguez, Maria J.; Santoni, Luca; Solomon, Adam R.; Temoche, Luis Fernando
Affiliation: Utah State University
Abstract: Black holes are influenced by external gravitational fields in the universe, which are generated by other astrophysical objects in their surroundings. Due to this gravitational

interaction, they experience tidal deformations of their event horizons. To quantify this effect, we compute the so-called Love numbers, which measure the deformability of the event horizon. Theoretical results from several authors have shown that Love numbers vanish for black hole solutions in four-dimensional spacetime. But does this behavior persist for black hole solutions in higher-dimensional spacetimes? In our presentation, we aim to address this question by demonstrating that, unlike their lower-dimensional counterparts, higher-dimensional rotating black holes exhibit non-vanishing Love numbers.

Title: How Much Quantum Confusion Does it Take to Catch an Eavesdropper
Authors: Boaz Oswald, Jean Francois Van Huele
Affiliation: Brigham Young University
Abstract: Quantum cryptography uses the inherent quantum uncertainty in polarization of photons and the inability to copy quantum states to catch an eavesdropper in communication channels carried by light. If a polarization is detected in a frame rotated from the frame it was sent in, it gives probabilistic results. In the original version of the well-known BB84 cryptography protocol, sender and receiver agree on two fixed bases, rotated by 45 degrees, to send and receive the photons. The ambiguity in bases forces an eavesdropper to intercept and forward possibly wrong polarizations, thereby revealing their presence. We explore the effect of increasing the number of bases and attempt to maximize the probability of detecting the eavesdropper. We show that, maybe surprisingly, this probability does not depend on the number of bases.

Title: Taphonomic, stratigraphic, and morphological analysis of hadrosauroids from the lower Wahweap Formation (early Campanian): insights into the early evolution and ecology of Hadrosauridae in North America
Authors: Madison S. Watkins, Alan L. Titus, Katja Knoll, Bryce A. Cassiano, Joseph J.W. Sertich, Grant T. Shimer, Arianna Harrington
Affiliation: Southern Utah University
Abstract: The early evolution of Hadrosauridae remains obscure, with identifiable materials currently restricted to the Milk River (Alberta), Menefee (New Mexico), Mooreville Chalk (Alabama), Aguja (Texas), and Wahweap (Utah) formations. Overall, the Wahweap Formation has arguably yielded the largest volume of material, but diagnostic cranial material is rare. Redating of sediments were previously used to create a Bayesian model that projects the base of the Wahweap Fm at 82.17 Ma (uncertainty of +1.47/-0.63 Ma), placing these among the oldest North American hadrosaurids. We analyzed the stratigraphy, facies, taphonomy, and morphological diversity of eight hadrosauroid localities from the Last Chance Creek Member and two localities from the Reynolds Point Member, with all localities restricted to the lower 50 meters of the formation. Six localities were mudstone-hosted, two were in a sandy mudstone, and two were in a channel sandstone, which was likely reworked. Individual bones show very little wear or evidence of scavenging, but the degree of disarticulation, sorting, and current orientation at seven localities indicates burial was not immediate postmortem. Seven localities contain elements from Voorhies groups I and II. Three localities contain material from all three Voorhies groups, although one locality only has minimal group II and III elements, suggesting most localities have been influenced by low to medium velocity currents. Bone orientations confirm current influence, with four localities showing moderate current alignment, two localities showing a strong current alignment, and three localities that were completely random with no current signature. The remaining locality was an articulated partial skeleton from which we could derive no current data. Our taxonomic identifications and sedimentary interpretations suggest that the early Campanian radiation of hadrosaurids in southern Laramidia consisted of members of both Brachylophosaurini and Kritosaurini that lived in or around persistent bodies of water

large enough for moderate velocity currents.

Title: Revisiting Tidal Deformations in Black Holes
Authors: Maria J Rodriguez and Malcolm Perry
Affiliation: Utah State University
Abstract: Black holes are among the most resilient compact objects in the universe. Within the theory of general relativity, black holes cannot be disrupted or disintegrate. However, recent studies have shown that black holes can deform in response to time-varying (dynamical) gravitational tidal forces. In this presentation, we will explore the tidal deformability of black holes and revisit the gravitational tidal Love numbers of extremal, zero-temperature rotating Kerr black holes.

Title: Metal Nanoparticles Synthesis with Biological Capping Ligands Facilitated by Microfluidic Devices
Authors: Seth Wetjen, Samuel Hodnett, Connor Cronin, Christopher Monson
Affiliation: Southern Utah University
Abstract: A microfluidic device was developed to fabricate silver and gold nanoparticles. Nanoparticle formation was verified through fluorescence characterization of the resulting nanoparticle solutions and SEM imaging of the nanoparticles. Silver nanoparticle formation was the most extensively investigated, and many sets of conditions resulted in nanoparticle solutions of sufficient concentration that the emission peak was significantly red-shifted (to ~550 or ~600 nm) compared to the peak observed in diluted solutions (~455 or ~465 nm). Biologically relevant molecules (proteins and to a lesser extent lipids) were shown to act as ligands forming reproducible silver nanoparticles. When gold nanoparticles were formed, it was shown that the size of the nanoparticles could be increased by increasing the reaction time before capping ligands were added.

Title: Estimating Environmental Exposure with Uncensored and Censored data
Author: Sazib Hasan
Affiliation: Utah Tech University
Abstract: For some regulatory purposes, it is desired to compare average on-site pollution concentrations in a narrowly defined geographic area with a large collection of background measurements. An approach to this problem is to treat this as a statistical prediction for the mean of a future sample based on a background sample. In this article, assuming lognormality, a fiducial approach is described for constructing prediction limits for the mean of a sample when the background sample is uncensored or censored. The fiducial prediction limits are evaluated with respect to coverage probabilities, and are compared with those based on another approximate method. Monte Carlo simulation studies for the uncensored case indicate that the fiducial methods are accurate and practically exact even for small samples, and they are very satisfactory for the censored case. Algorithms for computation of confidence limits are provided. The methods are illustrated using two real data sets.

Title: Quantifying Cadmium and Lead Concentrations in Cocoa Beans
Authors: Hannah J. Verhaal, Lydia E. Felix, Harrison R. Yates, Charles F. Davidson, J. Andreas Lippert
Affiliation: Weber State University
Abstract: The objective of this project was to determine the distribution and concentration of cadmium and lead in cocoa beans from Ghana and Guatemala by inductively coupled plasma-mass spectrometry (ICP-MS). Careful hand-shelling gave 12 weight percent shell for both bean samples. Test solutions of beans, shells, and nibs were prepared by microwave digestion and

subsequently diluted using a standard addition calibration curve scheme. Analytical results showed that sample location influences heavy metal concentration. Guatemala samples exhibited higher concentrations of both cadmium and lead than Ghana samples. Furthermore, the concentration of heavy metals is consistently higher in the shells than in the nibs. Analyses of samples from additional locations are required to reach definitive conclusions about the geographic influence and the distribution of cadmium and lead concentrations in the cocoa beans.

Title: Design and Performance Assessment of Butyl Norbornene Cross-Linked Anion Exchange Membranes for High-Efficiency Non-Aqueous Redox Flow Batteries
Author: Md Motiur, R Mazumder
Affiliation: Utah Tech University
Abstract: Non-aqueous redox flow batteries (NARFBs) face a significant challenge due to the lack of suitable separators that can effectively prevent crossover. In this study, poly(norbornene) (PNB)-based anion-exchange membranes (AEMs) were synthesized and characterized to address this issue. The PNB membranes were designed as copolymers of butyl norbornene (BuNB) and bromobutyl norbornene (BrBuNB), incorporating varying amounts of tetramethyl hexadiamine as a crosslinker.The performance of these AEMs was systematically evaluated under ideal conditions in NARFBs, considering key factors such as durability in non-aqueous solvents, charge-carrying ion permeability, electrical resistance, redox-active species crossover, and mechanical properties. Notably, BuNB-based AEMs demonstrated superior performance compared to the commercial Fumasep membrane in battery cycle tests. Long-term cycling tests revealed that the best-performing PNB membrane retained 83% of its total capacity over 1000 charge/discharge cycles, primarily due to minimal crossover. In contrast, the commercial FAPQ-375 membrane exhibited only 28% capacity retention, indicating significant capacity loss due to high crossover. These results highlight the potential of PNB-based AEMs as a promising alternative for improving the efficiency and longevity of non-aqueous redox flow batteries.

Title: Microplastic Accumulation in Shoreline Sediments of the Ogden River System
Authors: Kenley Stanger, Davis Swanson
Affiliation: Weber State University
Abstract: Microplastics in aquatic systems are a growing environmental concern due to their negative impacts on the health of aquatic organisms and the overall ecosystem. While most microplastic research focuses on oceanic systems, abundance in freshwater systems remains largely understudied. Therefore, quantifying and identifying shoreline microplastics in Utah‚Äôs unique terminal lake system is crucial for informing ecological management and sustainability practices. This study investigates the accumulation of microplastics in shoreline sediments of three lakes at varying elevations in the Weber River watershed. We used a Sediment-Microplastic Isolation (SMI) device to separate plastic particles from sediment samples, utilizing density separation. Wet peroxide oxidation (WPO) was carried out on each sample to remove excess organic material and biofilm on the recovered microplastics. Visual and FTIR microscopic analyses indicate the quantity and identity of plastics recovered. Data analysis will focus on determining microplastic abundance, common polymer types, and potential correlations with lake use and elevation within the watershed.

Title: A stable numerical scheme for a Lengyel-Epstein reaction diffusion model
Author: Jianlong Han
Affiliation: Southern Utah University
Abstract: We study a reaction diffusion Lengyel-Epstein system which describes the formation of chemical Turing patterns. An unconditionally stable semi-implicit difference scheme is

proposed for the system. It is proven that the numerical scheme is uniquely solvable and inherits the properties of the original system. The long term behavior of the numerical solution is analyzed.

Title: A Device to Measure Ionic Strength in a High School Setting
Authors: Abigail G. Petersen, Lisa Monson, and Christopher F. Monson
Affiliation: Southern Utah University
Abstract: We are building a conductivity tester that can be used in a laboratory setting to measure the ionic strength of a solution. This device is designed to be student friendly, relatively simple to build, safe, and inexpensive. It is simple enough that students can build this conductivity tester. We are incorporating this device into a lab based on SEEd standard CHEM.3.1. We have tested this lab in a classroom setting and are currently revising it.

Title: Strain-Driven Metal-to-Insulator Transition and Ferroelectricity in WTe_2
Authors: Ross Richins, Shao Qiu
Affiliation: Southern Utah University
Abstract: WTe_2, a two-dimensional (2D) van der Waals (vdW) material, has gained attention for its potential to exhibit out-of-plane ferroelectricity. However, as a semimetal, WTe_2 requires an insulating phase for polarization to be meaningful. In this study, we investigate the effects of mechanical strain on WTe_2 to induce a transition from semimetallic to insulating behavior, which is crucial for sustaining spontaneous polarization.
Using density functional theory (DFT), we apply biaxial strain to the WTe_2 system, focusing on altering the lattice constants in both the a and b-axes. So far, our efforts in the bulk system have not successfully opened a band gap, a necessary condition for ferroelectric behavior. Without an insulating phase, studying meaningful polarization becomes challenging.
To address this, we have shifted our focus to a bilayer WTe_2 system. Our ongoing work involves applying strain to this reduced system, with the hope of inducing a band gap. Achieving an insulating state in the bilayer system could pave the way for investigating out-of-plane polarization, as well as polarization switching mechanisms through interlayer sliding, which is characteristic of vdW materials.
Our next steps involve continuing strain analysis in the bilayer system and performing Berry phase calculations to quantify polarization in the insulating phase. The ultimate goal is to identify conditions under which WTe_2 becomes ferroelectric, thereby advancing the potential for 2D ferroelectric materials in nanoscale electronic and memory devices.

Social Sciences
Oral

Title: 'It's Not So Easy to Be Free': the Sounds of Protest in Folk Rock
Author: Theresa Martinez
Affiliation: University of Utah
Abstract: The 1960s and 1970s were a time of profound societal and political upheaval in the U.S., truly a maelstrom of sociohistorical transformation. Folk rock artists in this milieu would articulate sounds of protest in America as they expressed the struggles and concerns of their day. Artists spoke to issues that impacted poor and working people. They reflected on the extraordinary movements of disenfranchised groups, particularly the Civil Rights movement. They spoke to a brutal war in Vietnam which was costing thousands of lives. This paper focuses on a lyrical and thematic analysis of the work of selected folk rock artists as they reflected on and responded to the sociohistorical context of their times. The paper specifically unpacks the lyrics of our selected artists through a theoretical lens that examines oppositional cultures or

cultures of resistance within marked social locations or cultural formations, an authentic and strident response to the chaos of their times.

Title: Why's the Water Gone?: The Treadmill of Production Through Global Water Scarcity

Author: Joshua Cafferty, PhD
Affiliation: Utah Tech University

Abstract: This paper examines the primary drivers of global water scarcity. The theory tests three theoretical perspectives that are used in explaining environmental harm: the treadmill of production, ecological modernization, and population theories. The treadmill of production, rooted in eco-Marxist thought, asserts that capitalism's demand for continuous growth leads to unsustainable exploitation of natural resources, including water. In contrast, the ecological modernization perspective suggests that economic development can drive technological innovations that enhance sustainability. Population theories contend that population growth is the sole driving factor of environmental harm as more people populate the earth and use its resources. This study employs Qualitative Comparative Analysis (QCA) to evaluate these competing theories, utilizing data on water use, economic activity, and resource efficiency from various global sources.

The findings indicate that population growth alone does not drive water scarcity; rather, scarcity is exacerbated when water is allocated primarily to industrial and agricultural sectors rather than domestic use. Additionally, the study finds limited support for ecological modernization, as technological advancements in water efficiency do not significantly mitigate scarcity. In contrast to the above theories, the results provide evidence that economic expansion, as explained by the treadmill of production theory, is the dominant driving factor in growing water scarcity.

This research contributes to environmental sociology by highlighting the systemic nature of water scarcity, emphasizing the role of production over individual level consumption. It calls for policy interventions that address economic drivers of water depletion rather than focusing solely on population growth or technological solutions. Given the critical role of water in sustaining human and ecological systems, a shift toward more sustainable economic models is imperative.

Title: Students on the Margins: Investigating Student Belonging, Academic Success, Resilience, and Enrollment Intentions Among Marginalized Utah College Students

Authors: Sydney O'Shay, Amanda Lilly, Nicole Allen, Rachel Robison-Greene, Henry Greene, and Grace Pulsipher
Affiliation: Utah State University

Abstract: Identity characteristics such as gender, race/ethnicity, and family income significantly shape student experiences, success, and well-being in higher education. Research indicates that marginalized students, especially Black/African Americans, LGBTQIA+, and low-income students, face heightened challenges related to belonging, mental health, and academic barriers (Hanover Research, 2023; Messman & Leslie, 2019; Ovink et al., 2024). Diversity, equity, and inclusion (DEI) initiatives have sought to address these disparities, yet recent anti-DEI legislation across the U.S. threatens their implementation. In Utah, HB261, which took effect in July 2024, raises concerns about its impact on student belonging, academic success, and institutional trust.

This study examines how students at Utah's public universities perceive anti-DEI legislation and how it affects their educational experience. We will conduct a two-phase, mixed-methods study: first, quantitative surveys will measure perceptions of anti-DEI laws, belonging, academic success, psychological well-being, and enrollment intentions. In phase two, qualitative interviews will capture students' personal experiences with the bill. Data collection will span Utah's six public universities to assess the true effects of this legislation.

Our findings will not only provide insight into the genuine lived experiences of Utah college students under the anti-DEI policies but will contribute to further discussions on higher education as a whole. How will students, educators, and those affiliated with higher education be affected by these policies? Our results will be able to go further into this question, especially with the variety of concerns on student well-being and institutional inclusion efforts living in an anti-DEI country. We intend to share our findings with legislators, higher education administrators, and scholars through conferences, academic publications, and research briefs. By critically analyzing the effects of anti-DEI legislation, this research aims to inform future policy decisions and advocate for equitable access to higher education for all students.

Title: Can the Socratic Method Revive Academic Integrity? A Comparative Analysis of Assessment Strategies among Professors and Students in Pakistan and the U.S.
Author: Dr. Sana Shahid
Affiliation: Utah State University
Abstract: With the rise of artificial intelligence and online learning, educators face growing challenges in maintaining academic integrity. Previous studies highlight that students increasingly submit AI-generated assignments however limited research explores how professors perceive and address this challenge in their assessment practices. Hence, this study adopts an exploratory approach to investigate the strategies university professors use to detect and mitigate AI-assisted academic dishonesty. The study also explores oral examinations as a Socratic alternative to written assessments in the digital age.
Using a comparative framework the study collects perspectives from 15 professors and 15 students at Utah State University (USU) in the United States and 15 professors and 15 students from Sindh Madressatul Islam University (SMIU) in Pakistan. By gathering data from both professors and students, this research will provide insights into what professors believe will be effective strategies and how students perceive these approaches. This dual perspective will allow for a more comprehensive understanding of the dynamics between teaching practices and student reception. The inclusion of both U.S. and Pakistani academic contexts enables a comparative analysis of cultural and institutional differences in addressing AI-related challenges. Employing purposive sampling, in-depth interviews will be conducted, and thematic analysis using MAXQDA software will identify key insights. By comparing faculty and student perspectives across these distinct academic settings, the research aims to provide a thorough view of evolving assessment practices in response to AI-driven challenges and the potential reintegration of the Socratic method as a pedagogical tool in higher education.

Title: Navigating Motherhood and Fieldwork in Post-Conflict and Post-Genocide Contexts.
Authors: Miriam Greene, Dr. Stephanie Wolfe
Affiliation: Weber State University
Abstract: While a few books have explored motherhood and fieldwork, none specifically address the complexities of conducting research in post-conflict and post-genocide settings. Fieldwork in these contexts presents unique challenges, particularly for researchers traveling with children. The emotional and psychological impacts on mothers conducting this type of research remain largely understudied. Balancing the dual roles of mother and genocide researcher inevitably shapes one's engagement with the research, particularly during interviews and ethnographic work. While this does not inherently compromise objectivity, it is important to assess how these experiences influence the research process, if at all.
Moreover, women, especially mothers, have historically been underrepresented in academia and fieldwork. Understanding the challenges they face can provide valuable insight into necessary structural changes to increase their participation. This project seeks to address this gap in the literature.

I am currently working as a research assistant for Dr. Wolfe, collaborating on this research. My role at this stage involves conducting a literature review, after which we will develop a book proposal. While the project is ongoing, I believe it would be valuable to share our findings thus far.

Title: The Sacred Structures of Ogden's 25th Street
Authors: Brittney Mast and Chelsea Raza
Affiliation: Weber State University
Abstract: Based on Randolph Hester's idea that areas of cities have a "sacred structure" that deeply connects residents with these places, this study explores the ongoing cultural and historical significance of downtown Ogden's 25th Street. Based on a survey of 132 visitors, we discovered that visitors greatly enjoyed 25th Street. They saw the scenery and daytime activities as important, with Union Station especially essential. They also did not think that adding major chain store would increase their likelihood of visiting. This suggests that urban areas like Ogden connect with individual identities, and the loss of such places to neglect or development will greatly loosen community ties.

Title: Media Influence and Policy Response: The Impact of Media Coverage in International Human Rights Violations
Author: Macy McCormack
Affiliation: Weber State University
Abstract: This paper critically examines the relationship between Western media coverage and international policymaking, focusing on how media representation shapes global responses to human rights violations. Through an analysis of the media coverage and implications of the Rwandan genocide, and three current case studies, the Russia-Ukraine conflict, the Nagorno-Karabakh conflict, and the Democratic Republic of Congo conflict, this research highlights significant disparities in media attention and their corresponding impacts on humanitarian intervention, military aid, and diplomatic action.
The paper begins with the Russia-Ukraine conflict, where extensive media coverage amplified international responses, including United Nations resolutions and military support from Western allies. It then turns to the Nagorno-Karabakh crisis, which demonstrates how constrained media representation limits international policy actions and humanitarian engagement. Finally, the Democratic Republic of Congo underscores the consequences of sustained media neglect in addressing one of the most enduring and devastating humanitarian crises of modern times.
This research contributes to a deeper understanding of how Western media narratives influence global governance and policy formation, particularly in addressing human rights crises. It also examines the ethical implications of media coverage, emphasizing the need for balanced and nuanced reporting to ensure equitable and informed policy decisions. By integrating these perspectives, the paper offers insights into how media can better support ethical and effective policymaking in a globalized world.

Title: Investigating the Source and Veracity of Utah Stereotypes
Authors: Ryan T. Cragun, Bethany Gull, Michael Nielsen, Rick Phillips, Jesse Smith,
Affiliation: Ryan T. Cragun, University of Tampa; Bethany Gull, Utah Tech University; Michael Nielsen, Georgia Southern University; Rick Phillips, University of North Florida; Jesse Smith, Western Michigan University
Abstract: Utah has a distinctive religious subculture fostered by the consolidation of church, community, and kinship ties in the state. This leads to several stereotypes about members of The Church of Jesus Christ of Latter-day Saints in Utah. This paper examines the origin and veracity of these stereotypes by analyzing a stratified random sample of current and former members of

the church. We find mixed support for these stereotypes. Current members of the church are more likely than former members to be involved in multilevel marketing ventures, in accordance with a common stereotype. However, they are less likely to use antidepressant drugs, contrary to a pervasive folk belief. Current and former church members do not differ in their use of cosmetic surgery. We find that Utah's religious subculture is evolving and the primary cultural divide in the state is the demographic and behavioral variance between current and former members of The Church of Jesus Christ of Latter-day Saints.

Title: Wellbeing, justice, and experiential learning: A mixed methods study of a university campus garden

Authors: Elisa Diaz and CoCo James
Affiliation: University of Utah

Abstract: University Campus Gardens (UCGs) play an important role on their campuses yet are vulnerable to institutional change. Identifying the role of a UCG can potentially ease challenges the garden faces from an administrative perspective. Through the literature, UCGs have been connected to academics, student wellbeing, and food justice on campus. The objective of this project was to conduct a mixed methods engagement and impact study in collaboration with the Edible Campus Gardens (ECG) at the University of Utah. The study used three focus groups and a survey to gather data on student perspectives of the gardens in addition to feedback on what can be improved within the ECG. Deductive qualitative analysis indicated three major themes: experiential learning, wellbeing, and food justice. Wellbeing was the strongest theme, with students discussing both the social aspect of the garden environment and mental health benefits. Focus group data was used to inform the development of the subsequent survey. Quantitative analysis demonstrated that most students experienced positive outcomes related to the ECG, even when spending relatively few hours in the garden space during their first year. In assessing years in school and time spent in the garden as independent variables, an increase did not necessarily predict more positive outcomes such as deepened education, belonging, or feeling involved on campus; these outcomes were reported by all students to some degree. However, Fisher's exact test revealed that spending more than ten hours engaging with the ECG was a significant predictor of a positive impact to student personal wellbeing. While limited in scope, this study served as a pilot for the Edible Campus Gardens, providing insight into the varied opinions of engaged students. Additional research on University Campus Gardens can improve our understanding of impacts to student experiences and garden connection to health, sustainability, and belonging.

Title: Utah Lake: The Complex Origins of Shifting Baseline Syndrome

Author: Teri Harman
Affiliation: University of Utah

Abstract: This paper employs an interdisciplinary lens of historical synthesis, environmental theory, and social aspects of place to explore human relationship with Utah Lake. This large freshwater lake is the center of Utah Valley, ecologically, historically, and physically. Yet, culturally, it is adjacent, even absent. This complicated community connection is a prime example of "shifting baseline syndrome"(SBS), defined as a change in perception of a landscape as it responds to environmental abuse. Curated memory, accidental forgetting, and the privilege of some stories over others has drastically altered how residents interact with and understand the lake. Once a subsistence haven and vibrant fishery that sustained Indigenous peoples for thousands of years, much changed after Mormon settlement in 1849. Within the first few decades of pioneer stewardship racial injustices toward the Timpanogos and Ute people, ecological consequences of irrigation and industry, and practical aspects of religious identity created a new version of the valley. The evolution of lake as vital sustenance to lake as a "disabled ecology" is

a fascinating journey that can't be separated from the beliefs and actions of the people living on the shores. In this paper, I explore Utah Valley's SBS and its effect on human and nonhuman life. Key historical inflection points created new ways of using and perceiving the water. Failures in philosophy, pursuits of capitalism, and broader American patterns contributed along the way. As Utah Valley continues to expand around this central lake, with massive urban and suburban development projects and a steadily increasing population, the severe case of SBS threatens conservation and restoration efforts. This brief but fresh environmental history argues that a robust understanding of these complex confluences opens a path to better ways forward that atone for but don't repeat the abuses of the past.

Title: Demographic Survey of a Utah Street Tai Chi Program
Authors: Sabrina Espinoza, Kassidy Drage, Daniel Poole
Affiliation: Salt Lake Community College
Abstract: Researchers from Salt Lake Community College (SLCC) are working with a local non-profit organization to collect demographic data on program participants. The organization provides several programs focusing on individuals experiencing homelessness. One of the opportunities is a street Tai Chi program run several days a week at outdoor public locations. The organization has asked SLCC researchers to collect and analyze data about program participants. We have gathered preliminary demographic survey data to help the organization better understand the population they are serving and meet the needs of participants. In this paper we present updated data and recently collected responses. We evaluate strengths and weaknesses of the program and discuss future research efforts.

Title: Navigating Food Choices: A Qualitative Diabetes Camp Study
Authors: Morgan Heelis, Echo Oliver, Carla Cox, Eddie Hill, and Christina Aguilar
Affiliation: Weber State University
Abstract: According to the CDC, 304,000 youth under the age of 20 have Type 1 Diabetes (T1D), with numbers continuing to rise (Centers for Disease Control and Prevention, 2024; Gregory et al., 2022). T1D is an autoimmune disease where the immune system attacks the pancreas' beta cells, causing insufficient insulin production (Syed, 2022). Nutrition and exercise are vital for managing T1D (Monaghan et al., 2022), yet little qualitative research exists on how youth with T1D experience nutrition decisions. This study aims to explore the experiences of youth with T1D, using an interpretive phenomenological analysis (IPA) approach, which focuses on understanding individuals' perspectives (Smith & Osborn, 2007). We interviewed eight campers from the REACH Weber diabetes camp in August 2024. IPA involves exploring the lived experiences of 3 to 10 participants (Smith & Osborn, 2007). Interviews included 10 questions, aiming to learn more about three overarching research questions: 1) How does T1D influence food choices in youth? 2) What are their experiences with nutrition education? 3) What barriers do they face in social settings? Data was analyzed using a phenomenological approach (Smith & Osborn, 2007). Three themes emerged: food and insulin dosing, challenging food environments, and nutrition education and support. Our results were consistent with other studies, finding that youth with T1D struggle to follow management plans despite awareness of healthy eating due to social distractions and limited nutrition education. This study highlights the need for comprehensive nutrition education for families. Camps, like Reach Weber, serve as effective venues for nutrition education.

Title: Infrastructure Discrimination in the Westside of Salt Lake City: A systems Mapping Approach
Authors: Sebastian Trias, Morgan Aamodt, Hyrum Forstrom
Affiliation: Utah Valley University

Abstract: A salient issue facing Salt Lake City is the food and healthcare apartheid demarcating the east and west side of the city. This resource inequity disproportionately affects minorities and low-income residents of the city. Similar to many urban areas in the United States, the infrastructure of Salt Lake City, Utah, reflects a history of systemic racism and exploitation of minorities through redlining, environmental racism, wage theft, employment discrimination, a sectarianist monopoly, and other related legislature and cultural attitudes. Today, in addition to disparate healthcare access and food inaccessibility, residents of Salt Lake City's west side are burdened with significantly higher levels of air pollution, hazardous waste, and heavy metals when compared to the predominantly white, affluent east side of the city. Centuries of discrimination have led to the distrust of medical establishments and a gap in general health literacy, causing these marginalized populations to be the most in need of the very resources that are inaccessible and further marginalization for those who rely on welfare. Our research aims to utilize a systems mapping approach which includes studying underlying patterns, structures, mental models, historical contexts, stakeholders, existing interventions, and feedback loops. In developing a systematic, interrelated understanding of resource accessibility as a complex issue, future interventions and directions will be identified to guide potential avenues for social change in Salt Lake City.

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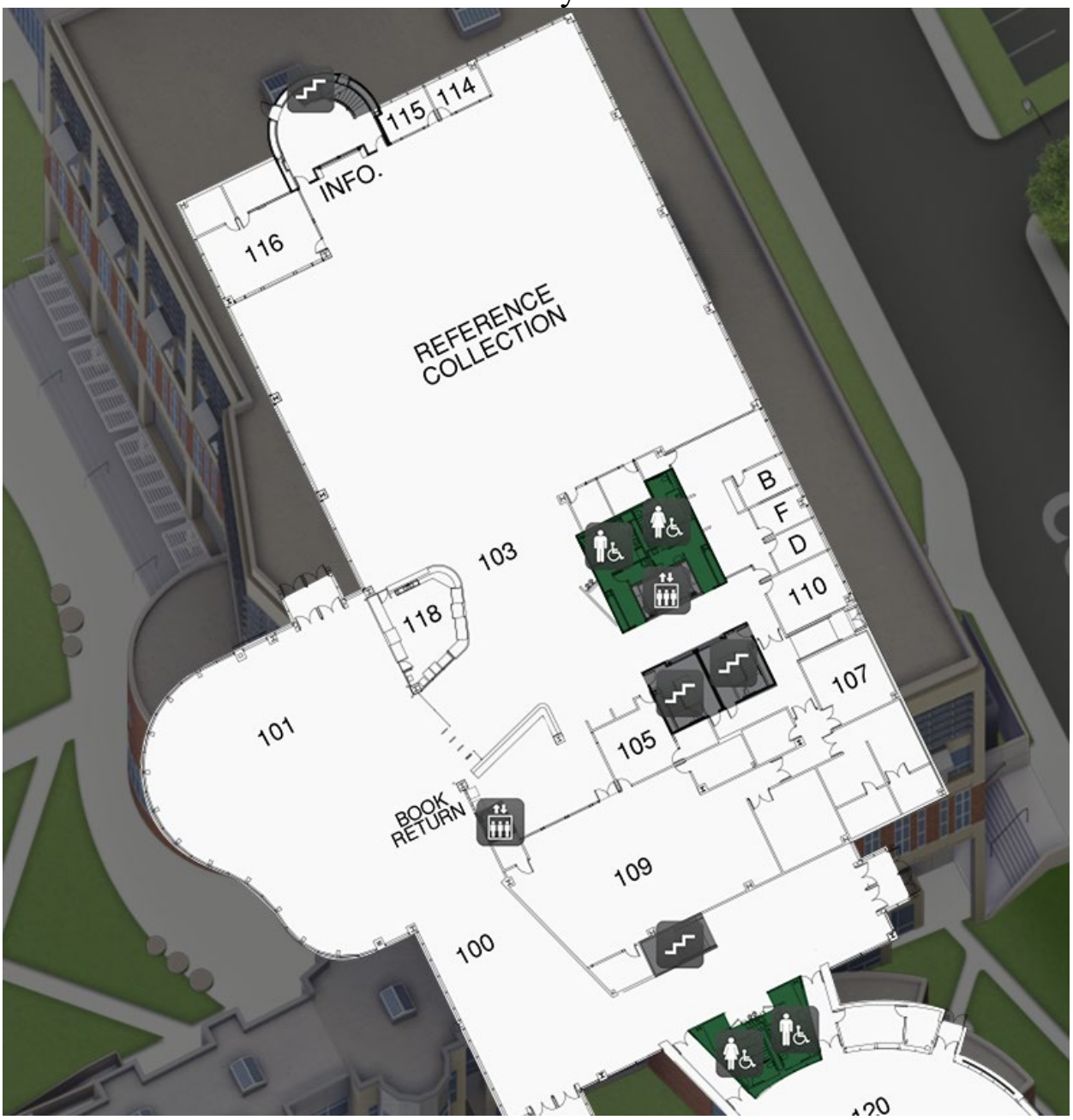

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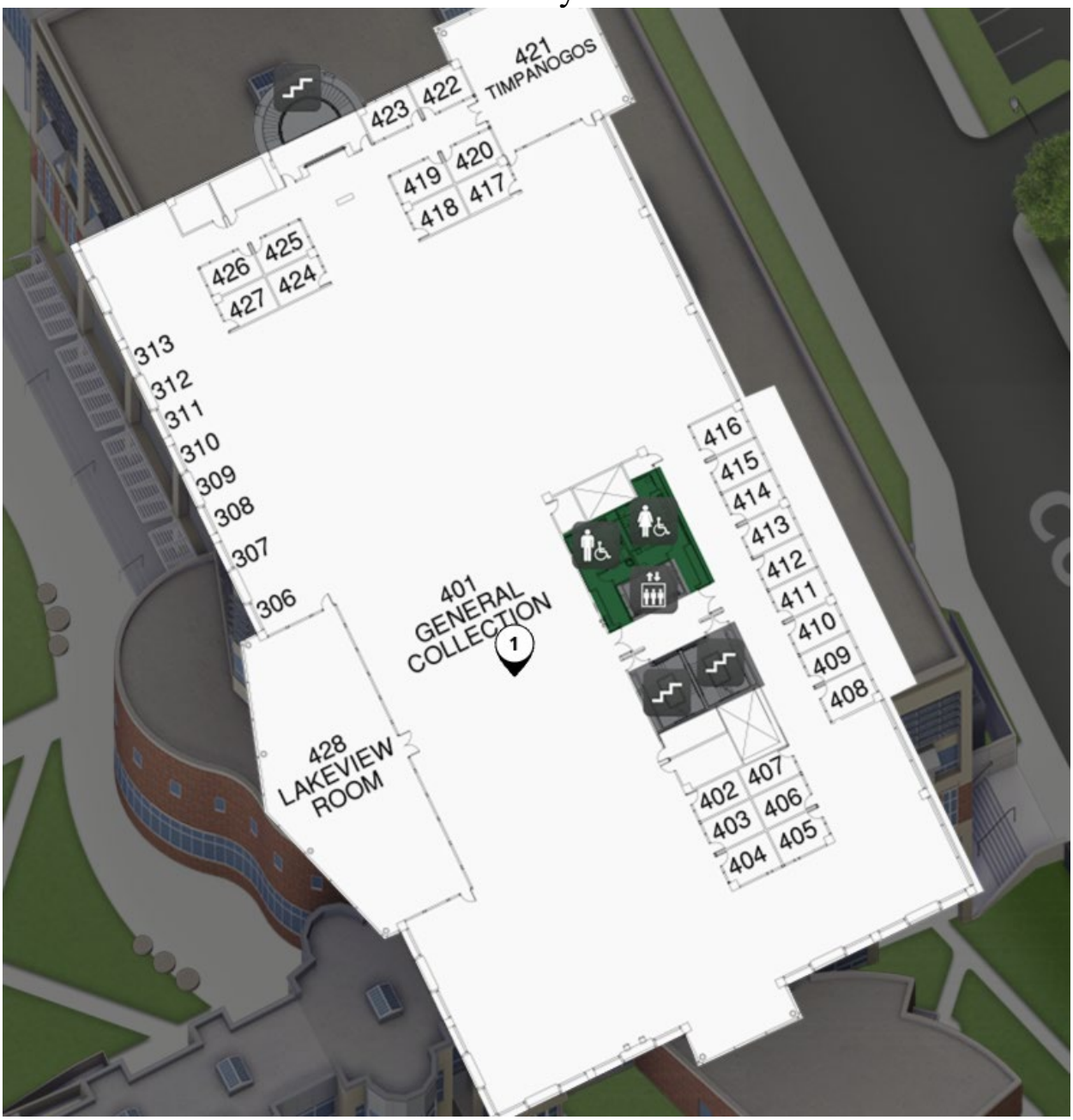

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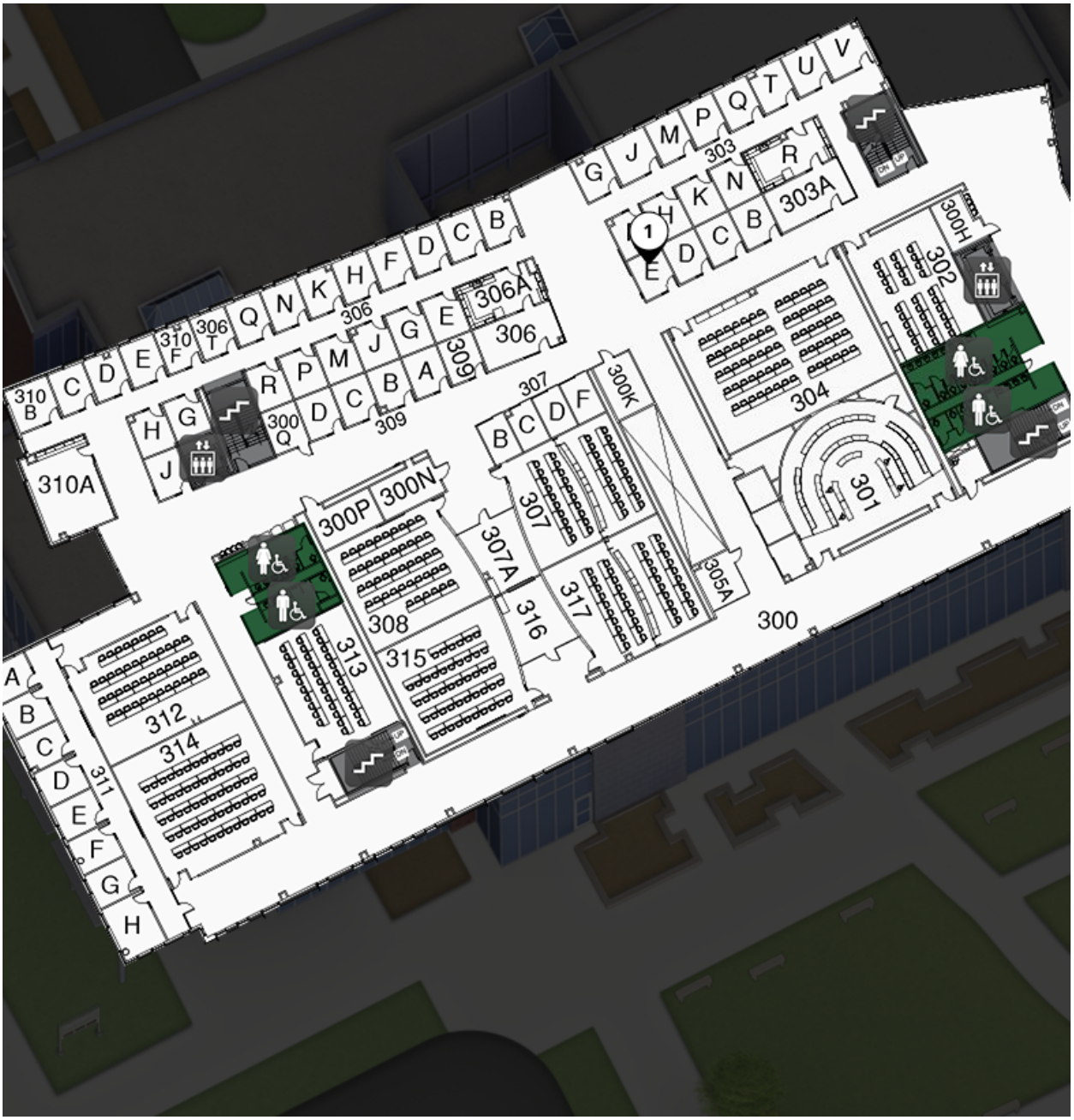

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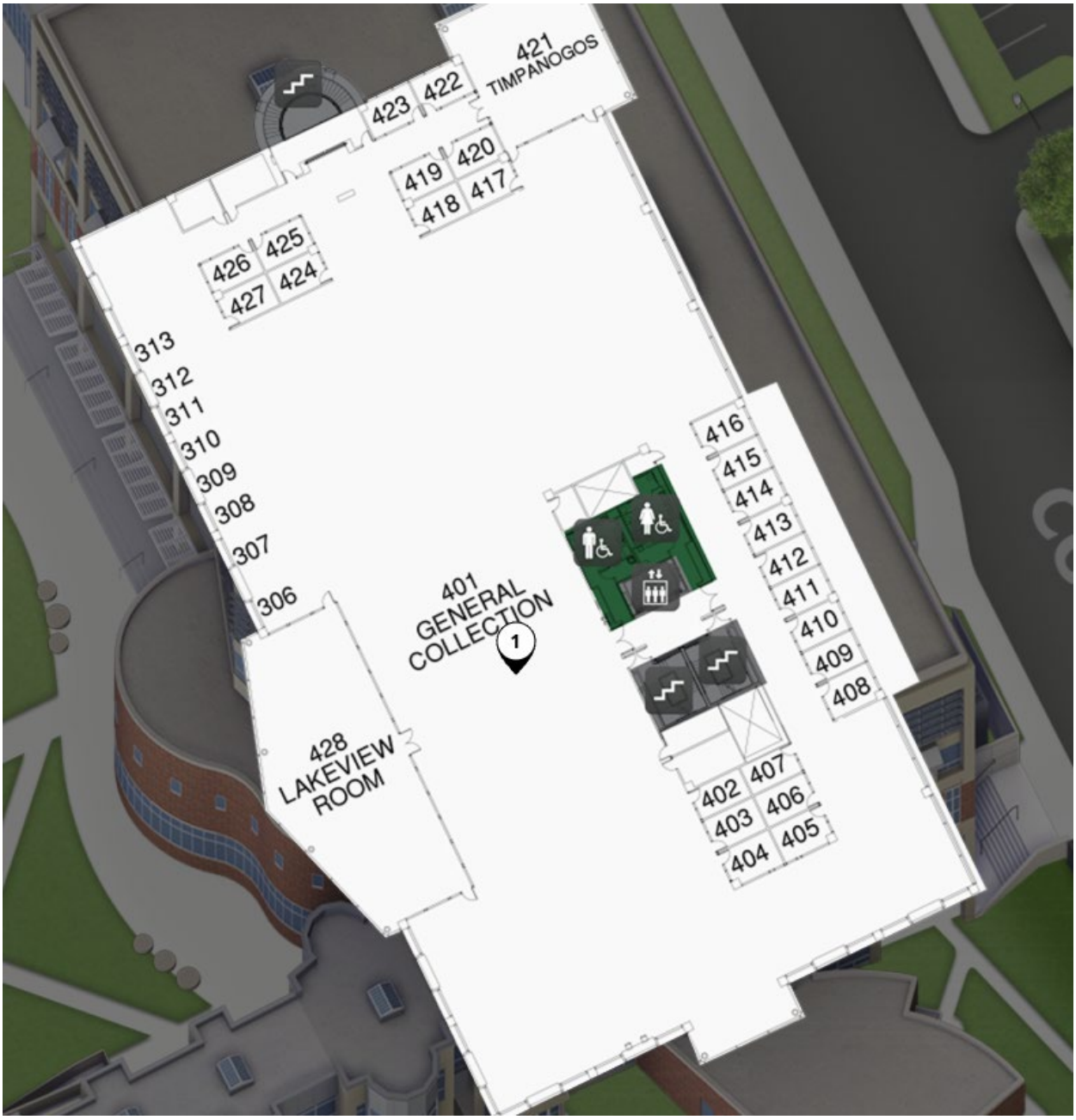

1933-2022

In Honor of Dr. James H. Wolfe

The Utah Academy of Sciences, Arts, and Letters honors Dr. Wolfe in acknowledgement of his donation to The Academy, which is used to fund and promote undergraduate research initiatives at institutions across the state of Utah.

James H. Wolfe was a brilliant mathematician and influential professor at the University of Utah for decades.

As an undergraduate, James studied at the University of Utah. He became Professor of Mathematics there after obtaining his Ph.D. from Harvard University in 1948. While living in Cambridge, James worked at MIT's radar research laboratory during WWII. His studies at Harvard involved geometric integration theory which resulted in Wolfe's Theorem, a current research topic in mathematical topology.

At the University of Utah, James was a treasured teacher who learned all of his students' names within the first few days of class and provided meticulous notes for each lecture. Cryptically, mathematical symbols used in examples always reflected the names of those dear to him, especially his wife, Martha.