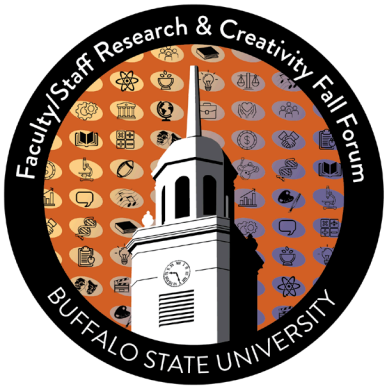
23rd Annual

Faculty/Staff Research & Creativity Fall Forum

November 7, 2024 • HOUSTON GYM • 11:00 a.m.-1:30 p.m.

BUFFALO STATE
The State University of New York

Houston Gym
Posters & Presentations from 11:00 a.m.–1:30 p.m.
Welcoming Remarks at 12:30 p.m.
library.buffalostate.edu/fallforum



BUFFALO STATE
The State University of New York

Mission Statement

The mission of the Buffalo State Research and Creativity Network Spring and Fall Forums is to develop, encourage, and support Buffalo State faculty and staff research and creativity and make collaborative research endeavors and grantsmanship more accessible.

Check the Fall Forum website library.buffalostate.edu/fallforum for more information.

23rd Annual *Faculty/Staff Research and Creativity Fall Forum*

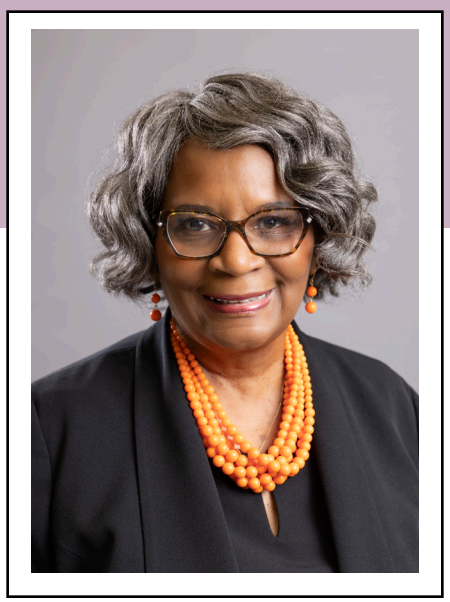
THURSDAY, NOVEMBER 7, 2024

Poster Session
11:00 a.m. – 1:30 p.m.

Welcome
12:30 p.m.
Bonita R. Durand, Interim President
Dr. M. Scott Goodman, Interim Associate Vice President
Dr. Ann Liao, Chair, Fall Forum Organizing Committee

Table of Contents

Photos from the 2024 Faculty and Staff Fall Forum can be found here.



Dear Colleagues and Participants,

Once again, we gather as members of Buffalo State University and SUNY's urban-engaged campus, to celebrate a tradition that truly embodies our shared mission and values. The Faculty/Staff Research and Creativity Fall Forum, our community's dedication to fostering academic rigor, promoting innovative inquiry, and making meaningful contributions to our wider communities is what sets us apart. This forum is an annual reflection of that commitment, a space where we can showcase the diverse and impactful work of our faculty and staff.

Your work transcends the boundaries of traditional research. It not only seeks answers to the world's most complex questions but also serves as a catalyst for curiosity and a love for knowledge among our students. In addressing critical issues, from the ecological to the ethical, and from the educational to the innovative, you are preparing our students to be the leaders and problem-solvers of tomorrow.

I would like to express my deepest gratitude to the event organizers, Dr. Ann Liao, Committee Chair and Associate Professor of Communication, Dr. Olga Novikova, Assistant Professor of Biology, Dr. Jing Zhang, Professor of Elementary Education, Literacy, & Educational Leadership, and Dr. Scott Goodman, Professor and Interim Associate Vice President for Academic Affairs. Your tireless efforts brought this forum to life.

I am thrilled to join you in navigating the enlightening discussions and thought-provoking presentations. The privilege of being part of a community that values and nurtures knowledge and creativity is something I cherish deeply, and I am delighted by the outcomes of your scholarly efforts.

As we reflect on the 2024 Faculty/Staff Research and Creativity Fall Forum, let us take pride in our collective pursuit of knowledge, innovation, and impact.

With sincerity and respect,

Bonita R. Durand, PhD
Interim President
Buffalo State University

The Buffalo State's Faculty and Staff Research and Creativity Fall Forum, is a notable event that exemplifies the vibrant culture of scholarly and creative achievement on our campus. This campus-wide celebration bridges diverse fields of study and unites disciplines, spotlighting the remarkable contributions of our faculty, staff, and students across all disciplines. Research and creative scholarship are more than academic pursuits—they are the cornerstone of our educational mission, enriching teaching and learning and strengthening our commitment to service. Through this showcase, we witness firsthand the collaborative spirit that defines our community, where faculty and staff not only engage in groundbreaking interdisciplinary work but also guide faculty, staff, and students through the intricate journey of research and discovery.

The integration of research, scholarly inquiry, and creative scholarship into our academic landscape distinguishes Buffalo State as a center of innovation and intellectual growth. To all participants: your dedication to advancing knowledge and nurturing creativity inspires our entire community. Your work enhances our institution's academic reputation. Thank you for being part of this celebration of intellectual discovery and creative excellence.

Sincerely,

Amitra Wall, Ph.D.
Interim Provost & Vice President for Academic Affairs

23rd Annual *Faculty/Staff Research and Creativity Fall Forum*

NOVEMBER 7, 2024 • HOUSTON GYM • BUFFALO STATE

Deans

Carol DeNysschen, *Dean, School of Professions*
Kelly M. Frothingham, *Interim Dean, School of Arts & Sciences*
Wendy A. Paterson, *Dean, School of Education*

Organizing Committee

Ann Liao, *Committee Chair, Associate Professor, Communication*
Olga Novikova, *Assistant Professor, Biology*
Jing Zhang, *Professor, Elementary Education, Literacy, & Educational Leadership*
M. Scott Goodman, *Professor, Interim Associate Vice President for Academic Affairs*

Acknowledgements

Kaylene Waite, *Senior Graphic and Web Designer*
Brent Ford, *Athletics Facilities Manager*
Gina Game, *Research Compliance Manager*
Kristin Mruk, *Special Assistant to the Provost and Senate*
Ian Leberman, *Interim Assistant to the Director of Graduate Studies*
Alexis Greinert, *Assistant Director of Events Management*
Zoe Goñez, *Events Manager*
Sam DeJesus, *Facility Operations Assistant 2*
Jimmy Morris, *Facility Operations Assistant 1*
Jesse Steffan-Colucci, *College Photographer*

And a special thanks to:

Amitra Wall, *Interim Provost and VP of Academic Affairs, for providing financial support to make this event possible*

2024 Distinguished Awards

SUNY Chancellor's Awards for Excellence

SUNY Chancellor's Award for Excellence in Classified Service

Susan E. Rubino, B.S. Administrative Assistant 2, School of Education

SUNY Chancellor's Award for Excellence in Adjunct Teaching

Eric S. Nagel, M.B.A. Lecturer, Computer Information Systems

SUNY Chancellor's Award for Excellence in Faculty Service

Kevin K. Williams, Ph.D. Associate Professor, Geosciences

SUNY Chancellor's Award for Excellence in Professional Service

Kimberly J. Jackson, Ed.D. Deputy Director of Commencement Operations and Ceremonial Events, Academic Affairs

SUNY Chancellor's Award for Excellence in Scholarship and Creative Activities

Guanqiu Qi, Ph.D. Associate Professor, Computer Information Systems

SUNY Chancellor's Award for Excellence in Teaching

Timothy J. Bryant, Ph.D. Associate Professor, English

Angela L. Patti, Ph.D. Professor, Exceptional Education

President's Awards for Excellence

President's Award for Excellence in Service to the University

Leasa N. Rochester-Mills, M.Ed. Director, Academic Standards Office

President's Award for Excellence in Librarianship

Ken Fujiuchi, M.L.S. Head of Information Commons, E. H. Butler Library

President's Award for Excellence in Academic Advisement

Sammy N. Naji, M.S. Assistant Director of Transfer Advising, Enrollment Management

President's Award for Excellence in Teaching

Margaret M. Herb, Ph.D. Associate Professor, English

Jennifer M. Reichenberg, Ph.D. Assistant Professor, Elementary Education, Literacy, & Educational Leadership

Donald A. Schmitter, M.S.Ed. Lecturer, Hospitality and Tourism

Summary of Sources of Funding

Some projects participating in this year's forum received funding from:

Bank of America
Buffalo State Professional Development Schools
Buffalo State Research and Creativity Council Incentive Award
Buffalo State Undergraduate Research Small Grants
Buffalo State Undergraduate Summer Research Fellowship
China Higher Education Society Educational Research Project
E.O. Smith Fellowship
Easton Biotechnology Award
Environmental Protection Agency
Erie County, New York
Geosciences
National Institute on Drug Abuse
National Science Foundation
New York State Environmental Protection Fund
New York State Workforce Development Grant
New York State Department of Environmental Conservation
Ralph Wilson Foundation and Verizon
School of Arts and Sciences
Social Justice Externship
SUNY/CUNY Southeast Asia Consortium
Teach Access
The Wilson Foundation
U.S. Fish & Wildlife Service

Recognizing the Members of the Million Dollar Club

The Million Dollar Club, established in 2006, recognizes individuals and projects that reach or exceed $1 million in sponsored program funding since 2000. Individuals or projects are added as they exceed the threshold. Below are current Buffalo State employees or affiliates belonging to the Million Dollar Club. The Galaxy Club distinguishes those that exceed $500 million in Sponsored program funding.

The Million Dollar Club

Lyubov E. Burlakova, *Senior Research Scientist, Great Lakes Center*

Darryl C. Carter, *Director, STEP Program, Precollegiate Academic Success Center*

Patrice A. Cathey, *Director, Precollegiate Academic Success Center*

Timothy Clark, *Director, Buffalo Film Commission / TV and Film Arts*

Michael J. DeMarco, P*rofessor Emeritus, Physics*

Alan Delmerico, *Community Health Behavior Scientist, Institute of Community and Health Promotion*

Thomas M. Giambrone, *Professor Emeritus, Mathematics*

Theresa M. Janczak, *Associate Professor, Exceptional Education*

Alexander Y. Karatayev, *Director, Great Lakes Center*

Steve M. Macho, *Associate Professor, Career and Technical Education*

Dan L. MacIsaac, A*ssociate Professor, Earth Sciences and Science Education*

Susan A. McCartney, *Director, Small Business Development Center*

Susan E. McMillen, *Professor, Mathematics*

Donald A. Patterson, *Director, Upward Bound Program, Precollegiate Academic Success Center*

Christopher M. Pennuto, *Professor, Biology*

N. John Popovich, A*ssociate Professor Emeritus, Career and Technical Education*

Jill K. Singer, *Distinguised Professor Emeritus, Earth Sciences and Science Education*

Karl E. Wende, *Population Health Scientist and Program Evaluator, Center for Health and Social Research (CHSR)*

William F. Wieczorek, D*irector Emeritus, Institute for Community Health Promotion (ICHP)*

Kathy Wood, *Associate Professor, School of Education*

Zhang Jie, Professor, *Sociology & Director, Center for China Studies*

Art Conservation

Center for Excellence in Urban and Rural Education

Academic Affairs

Financial Literacy and its Influence on First-Year College Student Retention Rates

Presenter: Bradley Goldowsky

Financial literacy skillsets may be lacking in the first-year college student population, which may contribute to lower first-year college student retention rates. This study attempted to understand and explore the link between financial literacy levels and first-year college student retention. By interviewing first-year college students, this phenomenologically based study provided insight into students' current understandings and feelings about financial literacy, financial literacy pedagogy, and students' desires to continue to their sophomore year of college. The study provided insight into specific financial literacy topics and other solutions that should be taught and provided to first-year college students. As a result of improved financial literacy programs and resources for students, colleges may recognize improvements in their first-year college student retention and overall graduation rates. Although this study did not find a relationship between financial literacy and first-year student retention rates, the completion of the study resulted in a better understanding of first-year college students' financial literacy levels and the financial literacy topics where first-year college students lacked insight. As a result of the study, it was realized that financial literacy skillsets were lacking and there were high levels of money mismanagement in the first-year college student population. Suggestions include creating a standardized financial literacy curriculum for students and programs to help students create and stick to budgets. This study provides insight for college administrators to provide relevant financial literacy to students, which may increase financial literacy levels and provide opportunities for better money management for first-year college students.

Art and Design

Community Building for Inclusive K-12 Art Classrooms

Presenter: Alexandra Allen

The purpose of this study is to discover how particular environments influence the development of both a positive disability identity and an inclusive community. This study aims to gain a better understanding of the academic experience of adults with disabilities who attended k-12 public schools in either self-contained classrooms or inclusive art classrooms. Through this research, I investigate how these learning environments contribute to participants' sense of self and community. Participants are also asked how their experiences in k-12 schools differ from the art center they currently attend and how their experiences at this art center have contributed to their disability identity. This research will determine meaningful inclusion practices for future k-12 art classes based on participantsâ€™ past experiences in these settings. The goal is to help art educators better understand how inclusive communities can be constructed and sustained in public school classrooms through positive disability development and art making. Data for this study is currently being collected, with an analysis and findings forthcoming.

MultiMod: A Platform for Qualitative Analysis of Multimodal Learning Analytics

Presenter: Dave Mawer

Multimodal analytics are increasingly important for research on learning, equity, and justice in our digitally-mediated world. However, challenges to using multimodal analytics in research include selection, analysis, technology, and ethics. We present MultiMod, a platform for aggregating, selecting, analyzing, and presenting multimodal texts. A case study of

multimodal sensemaking, intersubjectivity, and collaboration in Minecraft will illustrate how MultiMod supports our research team's qualitative analysis and allows annotated simulation as a mode of sharing research findings.

Find Yourself ... in Art: A creative assignment finds self-portraits in art

Presenters: Kathy Gaye Shiroki and Matt Baran

Start connecting with your students early in the semester, it is a great way to get to know who you are teaching. Here's how it works : Students select an artwork on campus or at the Burchfield Penney Art Center that they consider their self-portrait. It is an easy process yet invokes thoughtful insights for both the professor and student . We ask that the student take a selfie with the artwork and write why they selected this work of art and why it represents them. The benefits are symbiotic in that students may wander around campus in an inquisitive way, while deeply thinking about what they want to communicate and how this is reflected in an artwork. As a professor, you can see the face of your students, get to know their names little easier, see the artwork they selected, and most important listen to what is on their minds. The results are inspiring. Students reveal how they see themselves as part of the Buffalo State community.

Biology

Ancient site-specific LTR retrotransposons from mosses and fungi

Presenter: Olga Novikova

Ty3/Gypsy LTR retrotransposons are arguably the most prolific and successful group of transposable elements in plant genomes. Historically, two major clades of these elements have been recognized in plants: the Chromoviruses and the Athila/Tat elements. In this study, we identify and characterize a third distinct clade of Ty3/Gypsy LTR retrotransposons, termed Ylt1, found specifically in mosses.

Our research involved both experimental and computational approaches. We conducted empirical analysis using moss specimens from the collection at the Eckert Herbarium at Buffalo State. In parallel, computational investigations, including a detailed distribution analysis of Ylt1-like LTR retrotransposons and an examination of genome assemblies from various moss species, revealed that Ylt1-like LTR retrotransposons are unique to moss and fungal genomes.

A focused study of the Ylt1 elements in the genome of the model moss Physcomitrium patens demonstrated a distinct preference for insertion into palindromic sequences. Phylogenetic analysis suggests that Ylt1 elements originated from a single ancient event in mosses and fungi. We further explore the possibility of horizontal gene transfer between fungi and plants as a mechanism for the distribution of Ylt1 elements. Additionally, we propose that the sequence-specific insertion preference may represent a vestigial characteristic of an ancient lineage of transposable elements, indicating evolutionary remnants of a sequence-specific targeting mechanism.

Polymeric SUMO-2/3 chain signals are antagonistically regulated by the SUMO-targeted ubiquitin E3 ligase RNF4 and the SUMO-specific isopeptidase SENP6

Presenters: Shaniah Irving and Xiang-Dong (David) Zhang

Polymeric SUMO-2/3 chain modification plays a key role in regulation of accurate chromosome segregation, DNA damage repair, genome stability, stress response, and protein degradation. However, mechanisms by which poly-SUMO-2/3 chain signals are modulated are still not well understood. Both the SUMO-targeted ubiquitin E3 ligase (STUbL) RNF4 and the SUMO-specific isopeptidase SENP6 recognize poly-SUMO-2/3 chains through their multiple SUMO-interacting motifs (SIMs). Each of the SIMs contains a stretch of three or four hydrophobic amino

acid residues flanked on one side by acidic amino acids and directly interacts with one of the SUMO moieties within poly-SUMO-2/3 chain. While RNF4 contains four tandem SIMs within a small region with ~80 amino acids, SENP6 possesses eight SIMs dispersed distantly over a large region with ~500 amino acids. Our preliminary results revealed that overexpression of the RNF4 N-terminal fragment containing four-tandem SIMs wildtype (WT), but not its inactive SIMs mutant (Mut), increases levels of poly-SUMO-2/3 chain conjugates in human cells. Hence, we hypothesize that compared to SENP6, RNF4 has a higher binding capacity with poly-SUMO-2/3 chains and therefore inhibits SENP6-mediated disassembly of poly-SUMO-2/3 chains. To test this model, we first performed the in vitro SUMO-deconjugation assays in a time course by incubating poly-SUMO-2 chains with YFP-tagged SENP6 in the presence of His-tagged RNF4 fragment containing either SIMs WT or SIMs Mut followed by immunoblot analysis. We found that His-RNF4 SIMs WT, but not its SIMs Mut, effectively inhibited SENP6-mediated disassembly of poly-SUMO-2 chains in vitro. Furthermore, our in vitro and in vivo binding assays demonstrated that compared to SENP6, RNF4 exhibited a higher binding activity to the linear fusion proteins containing multiple SUMO-2 moieties (SUMO-2 polymer), which mimics the poly-SUMO-2/3 chain modification signals. Therefore, our results have elucidated that poly-SUMO-2/3 chain signals are antagonistically controlled by two of the best-known SIMs-containing proteins, RNF4 and SENP6, for degrading and stabilizing poly-SUMOylated proteins, respectively. A better understanding of poly-SUMO-2/3 chain modification signals may help us develop novel therapeutic treatments for human diseases, including cancer.

Invasive crayfish management: a case study

Presenters: Chris Pennuto and Emily Klimczak

Management of aquatic invasive animals represents a significant challenge once a population is established. A local, single population of the invasive red swamp crayfish (Procambarus clarkii) was identified in 2020 on private property and brought to the attention of WNY PRISM office. We worked with the pond owners to embark on an intensive trapping program to manage this population. After two starter years, and 3 years of intensive efforts, management activities appear to be working. The percent of males in the population, average length of captured animals, and average mass of captured animals all have declined. Similarly, the number of animals captured per trap-night showed a decline. To date, just over 3000 crayfish have been captured at this location, but a mark-recapture tagging effort suggests there are nearly 500 crayfish yet to be collected. Future efforts will introduce native crayfish to the system to examine if niche competitors can assist in keeping numbers of the non-native species low enough to reduce the risk of range expansion.

"Orchids of the succulent world" - the greenhouse Stapeliad collection

Presenter: Robert Warren

Stapeliads are a fascinating group of flowering succulents distributed in old world arid regions such as the South African Cape, the Arabian Peninsula and Western Ghats of India. There are about 300 species of Stapeliads in 30 genera, and almost all share a nondescript stem morphology but diverge greatly with wildly patterned and strikingly colored flowers. What is most remarkable about these flowers is the contrast between their visual beauty and their putrid smells. Being arid-habitat plants, they have little access to bees and butterflies, so they have co-evolved with flies as pollinators. In a great example of radiative evolution, they apparently alleviate competition for fly pollinators by producing species-specific flower smells to attract different fly guilds, including those flies that are attracted to newly rotten meat, old rotting meat, urine, carnivore feces and herbivore feces. In addition, the flowers typically have complex 'traps' that ensnare fly mouthparts or legs – not releasing them until they have been brushed by a pollen sac. The unique biological, ecological and evolutionary diversity of the Stapeliads makes them an excellent greenhouse collection subject for teaching and research.

Western New York Partnership for Regional Invasive Species Management (WNY PRISM): Partnering to Protect Western New York from Invasive Species

Presenters: Andrea Locke, Rachel Taylor, Brittany Hernon, Nick Farese, and Chris Pennuto

Western New York Partnership for Regional Invasive Species Management (WNY PRISM) is one of eight regional partnerships in New York State created to help prevent or minimize the harm caused by invasive species to New York's environment, economy and human health. The WNY PRISM Mission is to proactively identify, evaluate, and address invasive species priorities in western New York using a coordinated partnership of local professionals, organizations, and community members to improve, restore, and protect local aquatic and terrestrial resources. WNY PRISM has six core functions: Partner/Network Coordination, Information Management, Education and Outreach, Prevention, Early Detection and Rapid Response, and Management and Habitat Restoration. By Vfostering regional collaboration in WNY PRISM's efforts, the impact of invasive species will be minimized, and the natural resources and beauty of western New York will be preserved. WNY PRISM is hosted by the Great Lakes Center (GLC) and offers a variety of opportunities for Buffalo State University students and recent graduates. For example, WNY PRISM provides internship opportunities for students, including graduate students enrolled in the Great Lakes Environmental Science Master of Science program. WNY PRISM hires seasonal staff each summer (e.g., Watercraft Inspection Stewards, Invasive Species Management Assistants, Education and Outreach Assistant), which are great opportunities for those looking for professional experience as they start, or prepare for, their careers. WNY PRISM also offers volunteer opportunities throughout the year where individuals can further their knowledge, skills and experience with invasive species identification, surveys and management.

Burchfield Penney Art Center

Model Museums, New Formats for Engaging High School Students

Presenter: Mary Kozub

The Burchfield Penney launched a program for teaching Buffalo Public School students in a muti-session education program with learning focused on careers in museums. Eighteen students meet with all members of museum staff and learn about work in curating, education, marketing, fundraising, programming, operations, and art handling with the goal of inspiring them to consider working in the arts. The intention is to create an awareness that the field is more complex than just curating exhibitions and the skills needed are applicable in many industries.

Business

An AI Leadership Model for USA and Europe

Presenter: Michael Littman

This session will review leadership skills commonly found in research of successful leaders. It will compare those skills to generative AI output on leadership skills for a discussions of similarities and differences. The conclusion will be a review and discussion of the overlap leading to a combined designed leadership model.

Butler Library

Zines: Creation, Curation, and Pedagogy at Butler Library

Presenter: Julie Setele

Recent years have seen a resurgence in interest in zines - that is, self-published, DIY magazines that are made cheaply and for little or no profit. At Butler Library, our new zine collection includes over a hundred and fifty zines that are primarily focused on social justice topics. The collection supports LIB 389 (Social Justice Through Zines), a new course in which students learn about information literacy and social justice by reading, analyzing, and making zines. Students have the opportunity to add their own zines to the library collection at the end of the semester.

Dr. Julie Setele is a librarian who curates the zine collection and teaches LIB 389. They are also a zinester, having made more than two dozen zines on topics as varied as libraries and book recommendations, artificial intelligence, women's soccer, abortion, and more. This poster will introduce attendees to the Butler Library Zine Collection, the zine pedagogies employed in the LIB 389 course, and the zines produced by Dr. Setele.

Center for China Studies

Practice and development of "Internet+Nursing service" in China

Presenters: Ying Ling, Li Yang, Changjing Shi, Xinyun Wang, and Cuisong Zhao

This project is about the development and advantages of the "Internet + Nursing Service" at The First Affiliated Hospital of Guangxi Medical University in China. This service, endorsed by the National Health Commission, uses an app to connect nurses with patients, offering home care, particularly for those with limited mobility. In just three years, over 1,700 home care visits have been completed.

Key advantages include:

1. Professionalism: 80% of nurses are specially trained and certified to handle complex cases like wound healing and rehabilitation.
2. Convenience: Patients can book services via WeChat, view the service process, and leave feedback, with near-perfect satisfaction ratings.
3. Standardization and Systemization: The service follows SOPs approved by regional governments, ensuring high-quality care and standardized procedures across all regions, saving time and money for patients.

In conclusion, the professional staff, convenience, and systematized platform make this service highly appreciated by patients.

Chemistry

Heterocyclic Amino Esters Towards Novel Drug-Discovery

Presenters: Sujit Suwal, James Hayes, and Alyssa Heisler

Heterocyclic moieties are the key pharmacophores in natural products and modern FDA-approved drugs. Despite their ubiquitous application in biochemical and pharmaceutical research, the heterocyclic units are still less explored as

amino acid surrogates. For this reason, my laboratory is interested in creating a library of structurally and functionally diverse heterocyclic amino esters using Buchwald Hartwig amination followed by Suzuki cross-coupling reactions. The resultant products are orthogonally protected and can be saponified and integrated into the N-terminus peptide and peptidomimetics using solid phase synthesis via t-boc chemistry. With this approach, we have successfully created over four dozen molecules and tested their compatibility in the syntheses of heterocyclic backbone containing peptides or peptoids (HBP). We also synthesized a library of drug-like small molecules using our heterocyclic amino-esters. Some of these compounds were tested against different strains of bacteria in collaboration with the biology department and identified a few hit molecules. Further, we are exploring the anti-cancer properties of these compounds against renal carcinoma and breast cancer. This poster also highlights ongoing research collaboration between my laboratory with Gates Vascular Institute and Roswell Park Cancer Institute.

Chemical Analysis of Terpenes in Cannabis Flowers and Cannabis-infused Commercial Products

Presenters: Grace Poleto and Kaitlyn Ignaszak

Since many states including New York decriminalized the possession and personal use of marijuana, there has been a sharp rise in the use of cannabis products in USA. Terpenes are small hydrocarbon compounds which are responsible for the unique scent of cannabis flower. It is reported that terpenes potentially work in synergy with cannabinoids to produce various psychoactive effects. Therefore, determining the terpene profile of a cannabis sample is a crucial part of cannabis laboratory testing. In NY State, terpene profiling is one of the required laboratory tests for cultivators and processors by the Office of Cannabis Management (OCM) and consumers are expecting information about terpenes are present in the products they purchase. In this project, we report preliminary chemical analysis of terpenes present in various cannabis flowers and cannabis-infused commercial products by gas chromatography (GC) and mass spectrometry (MS).

Stepwise growth of gold nanoparticles using inverse Turkevich method

Presenters: Jillian Tung and Jinseok Heo

Near-IR (NIR) surface-enhanced Raman scattering (SERS) is a promising technique for generating high-resolution biomedical images, essential for early cancer diagnostics. Gold nanoparticles (AuNPs), modified with NIR reporter molecules, play a critical role in this bioimaging approach. Commercial AuNPs are typically synthesized using a modified Turkevich method, which involves reducing gold ions by adding citrates to a gold ion solution at elevated temperatures. The citrates stabilize the AuNPs by creating a negative charge, preventing their aggregation through electrostatic repulsion. However, for NIR-SERS imaging, controlled aggregation of AuNPs is crucial to produce strong SERS signals. Uncontrolled aggregation, on the other hand, leads to inconsistent results.

Previous research demonstrated that a quick-freezing technique could control the aggregation of AuNPs without the use of chemical agents. These AuNP clusters exhibited moderate aggregation and maintained long-term stability and reproducibility in NIR-SERS signals. Interestingly, a mysterious Raman peak, which could not be assigned to the citrates, was detected from the aggregated citrate-capped AuNPs. This project aims to investigate the origin of this unexplained peak.

One hypothesis is that dicarboxyacetone (DCA) is produced from citrate oxidation during the Turkevich synthesis. However, DCA concentration was too low to detect directly. The inverse Turkevich method, which adds gold ions to a boiling citrate solution, has been shown to control AuNP sizes better and may also produce more DCA. Nonetheless, the mysterious peak remained uncharacterized until a modified inverse Turkevich method and stepwise AuNP growth finally led to its observation, suggesting further investigation is needed to fully understand its origin.

Civic and Community Engagement

Equity in Experiential Education

Presenter: Victoria Cirillo

Though the benefits of experiential learning activities are well documented, current research into who has access to these activities and why is lacking. Given the current push for the use of high-impact practices in colleges and universities, it is essential to determine if these practices are equitable and accessible to all. This master's thesis investigated the question of how student demographics affect participation in experiential learning activities during the undergraduate years. It also analyzed the impact of institutional characteristics and supports on barriers to participation. For simplicity, the study focused on four of the most common experiential learning activities today, namely community-based learning or service-learning, internship or co-op experiences, study abroad programs, and undergraduate research. The results of the study demonstrate that student demographics have little impact on experiential education participation at the institutions studied. They also show that institutional supports such as integration into the curriculum and the granting of academic credit have the ability to increase participation rates across student demographics.

Communication

Learning from Group Projects: The Role of Instructor Immediacy, Academic Self-efficacy, and Flow

Presenter: Ann Liao

This study examined group-based student learning from the perspectives of instructor immediacy, academic self-efficacy, and flow. Research on how students learn from a group project and the role played by an instructor is lacking in the existing instructional communication literature. Results from this study show that both instructor immediacy and academic self-efficacy predicted learning. Among the 9 dimensions of flow investigated, two dimensions predicted learning. It was further found that instructor immediacy predicted academic self-efficacy and 5 dimensions of flow, while academic self-efficacy mostly predicted flow. A path model was constructed to assess the direct and indirect relationships among variables. The path model explained 58 percent of the variance in learning.

The Daily Worker and baseball

Presenter: Joe Marren

In 1947 Jackie stepped on to a Major League baseball diamond becoming the first Black player in the modern era. Yet the road to get him there as a Brooklyn Dodger was a long one filled with disappointments. The sports reporters who covered MLB basically fell into three camps: the Black press, which had advocated for integration for decades; the Communist press, which saw it as a class struggle and advocated for integration; and the mainstream white press, which generally wasn't as involved as the Black or Communist newspapers. This presentation is about Daily Worker sports editor Lester Rodney and the role of that paper in the struggle, focusing on the years from 1936-47.

The Post Production Diversity Institute

Presenters: Dorothea Braemer, Meg Knowles, Tomas Henriques, and Ruth Goldman

Buffalo State's Post Production Diversity Initiative (PPDI) is a collaboration between Buffalo State University (Media Production Major and Digital Music Minor), the Motion Picture Editors Guild – New York, the media company Avid, and Buffalo FilmWorks. PPDI is funded by a NEW YORK STATE ENTERTAINMENT WORKFORCE DIVERSITY GRANT.

Designed to increase diversity in the post production media field, PPDI is a one-year program which prepares 18 participants from diverse backgrounds for entry level careers in video editing and audio mixing.

The main components of PPDI are:

- Building industry-focused knowledge through virtual workshops with professional editors and sound mixers from the Motion Picture Editor's Guild.
- Creating a professional profile through career-development workshops.
- Increasing technical skills through Avid certificate training in video editing and sound mixing, with the possibility to receive a valuable Media Composer or Protools user certificate.
- Developing social skills through networking opportunities and one-on-one mentorship with professionals working in the industry in Buffalo and New York.

Computer Information Systems

Louis Stokes Alliance for Minority Participation (LSAMP) Program: Encouraging Undergraduate Research for Students Underrepresented in STEM

Presenter: Sarbani Banerjee

Buffalo State University as a part of SUNY Alliance received funding from the National Science Foundation (NSF) to provide student enrichment programs to underrepresented students through undergraduate research in science, technology, engineering, and mathematics (STEM) disciplines. The goal of NSF Louis Stokes Alliance for Minority Participation (LSAMP) program is to increase the numbers of students matriculating into and successfully completing high quality degree programs in Science, Technology, Engineering, and Mathematics (STEM) disciplines to diversify the STEM workforce. Emphasis is placed on transforming undergraduate STEM education through innovative, evidence-based recruitment and retention strategies, and relevant educational experiences in support of racial and ethnic groups historically underrepresented in STEM disciplines like African Americans, Hispanic Americans, American Indians, Alaska Natives, Native Hawaiians, and Native Pacific Islanders. Buffalo State LSAMP program website (https://lsamp.buffalostate.edu/) details all the activities of this program.

Similarities and Difference between Python and C++

Presenter: Eric Jing Guo

Both Python and C++ are the most popular and general-purpose programming languages. They both support Object-Oriented Programming (OPP). Therefore, they share some similarities. However, they are a lot different from one another. This study focuses on discussion the similarities and differences between Python and C++. The intent of this study is to assist students to better understand the two languages and therefore choosing between Python and C++ depends heavily on the project needs and the student programming experience.

Applying Artificial Intelligence (AI) based Segmentation Anything Model (SAM) for Extractions of streets and roads from New York State digital orthographic aerial images

Presenters: Gang Hu, Tao Tang, Jessica Auge, Eric Guo, and Daniel Liu

Segmentation Anything Model (SAM) was published by a team of researchers at the Institute of Robotics, Carnegie Mellon University (Hertang c. at al., 2024). The model was designed for road network graph extractions from satellite images. The AI transformer-based graph neural network was utilized to predict the network topology in generating edges and vertices to extract the roads and streets from original raster satellite images.

The objective of our current research is to utilize the SAM model to extract street and road networks from New York State digital orthographic images. The computational package was downloaded from the website of the research team at Carnegie Mellon University. The worldwide training datasets were also downloaded to run the initial training process to the SAM model. Google Co-laboratory (Google Colab.) was initially used as the computational server since both high-speed computation and large training data storage are required. However, it was not successful. Then, the SAM computational package was switched to a local high-speed GPU (Graphic Processing Unit) computer to run. The experiment with different GPU capacities has been conducting in this study to train the SAM model to generate high accuracy and high precision road network results. Our first step goal is to apply the SAM model to extract five sampled NYS digital orthographic aerial images across the Erie County, NY. The ultimate goal is to adjust the SAM model to extract the roads and streets for the entire New York State.

Smart Smiling Project: AI for Healthier Teeth and Brighter Futures

Presenters: Gang Hu and Kimberly Zittel-Barr

Accurate diagnosis of dental diseases is essential for effective treatment. With advancements in AI, modern dental care now enables patients to self-diagnose and monitor their dental health remotely. In the proposed portal system, patients can upload intra-oral photographs for automated, remote diagnosis, allowing dentists to access real-time information. An embedded multilingual chatbot further enhances communication and patient engagement.

Beyond diagnosis, the system also facilitates the generation of 3D models for dental prosthetics. Traditional methods for creating prosthetics, such as crowns and implants, are often time-consuming, costly, and require skilled technicians. Errors during scanning or model creation can lead to expensive rework. By leveraging AI-based techniques, this project aims to reduce both the processing time and costs associated with dental prosthetics.

The goal of this research is to improve access to dental care, particularly for individuals in remote or underserved areas, while reducing the need for frequent in-person visits.

Elementary Education, Literacy, and Educational Leadership

Cross-Cultural Adaptation and Use of a Widely Used American Teacher Education Textbook Translated into Chinese

Presenters: Jing Zhang, Huiying Hou, Xiaoyan Zhao, and Yinyan Shi

This study addresses the cross-cultural adaptation, translation, and implementation of a widely used American textbook for teacher candidates into Chinese. The work explores the theoretical and methodological considerations in translating curriculum resources for different educational contexts, evaluates the use of these resources by teacher candidates in China, and offers insights into the global exchange of educational materials. The study is positioned at the intersection of curriculum design, research, and evaluation, contributing to ongoing discussions on how curriculum resources are adapted and used across cultures and languages.

Elevating our Pre-Service Teacher Mentors: Providing Effective Professional Learning Opportunities for Mentor Teachers

Presenters: Lisa Brosnick, David Henry, Corinne Kindzierski, Jennifer Reichenberg, Alayla Ende, and Julie Henry

Teacher candidates benefit from quality field experiences with mentor teachers in the schools who are able to guide their development, linking theory and practice in specific contexts (Butler & Cuenca, 2012). Research supports the value of professional learning for mentor teachers (Parker, Zenkov & Glaser, 2021). Mentor teachers can benefit from professional development related to providing emotional support, giving feedback, gradually releasing responsibility and control, encouraging co-teaching (Hobson et al., 2009; Norville & Park, 2021) and encouraging experimentation (Kang, 2021). For this project, university faculty brought secondary mathematics and science mentor teachers to campus for a one-day workshop on improving the mentoring experience. The workshop focused on providing effective mentoring, including working as co-teachers and supporting effective research-based teaching practices. This inspired a similar effort by elementary education faculty to provide professional development for the mentors working with teacher candidates who are currently working as teacher assistants and teacher aides in urban schools. Pre-post surveys indicated that mentor teachers in both projects learned more about their role and how to best support their teacher candidates. Implications will be shared.

Why are Student Cell Phones Restricted in Two Brazilian Schools?

Presenters: Christopher Shively, Teddi Hastreiter, Keith Ray, and Henrick Oprea

During the summer of 2024, school leaders from two separate private schools in Brazil decided to restrict cell phone use for all students in their schools. In this research presentation, we used a Narrative Inquiry (Clandinin, 2013) methodology to help us understand why the school leaders restricted cell phone use among students. We examined how the intersecting "Professional Knowledge Landscapes" (Clandinin & Connelly, 1995) of the school leaders and the students' parents created this new policy. An analysis of the school leaders "told stories" revealed their "Intellectual Character" (Ritchhardt, 2001) and how the dispositions associated with this construct influenced their decisions to always keep the needs of their students and parents in the foreground.

Empowering Future Educators: The Impact of Read-Aloud Experiences on Pre-Service Teacher Confidence and Effectiveness

Presenters: Sherri Weber and Angelica Tennant

This study explores the impact of read-aloud sessions conducted by pre-service teachers in a local community school on their professional development and self-efficacy. Through a survey administered to participants, findings reveal significant increases in confidence and perceived effectiveness in key teaching competencies. Pre-service teachers reported improved skills in writing educational objectives, employing behavior management strategies in small group settings, and adapting lessons responsively to meet student needs. Additionally, participants expressed enhanced reflective practices, indicating a commitment to evolving their teaching methodologies based on experiential learning. These results underscore the potential of school-based field experiences to foster essential pedagogical skills and bolster the confidence of future educators in becoming successful future educators.

Engineering Technology

Clean Energy Education: Curriculum to Change Lives and Address Climate Change

Presenter: Brian P. Murphy

Why talk about Clean Energy Education now? Awareness of the effects of global warming has become mainstream - driving the need to reduce dependence on fossil fuels. Growth in clean energy technologies and manufacturing increases demand for graduates trained in these areas.

Clean Energy (CE) Education research aims to determine a curriculum supporting a pathway from workforce training through baccalaureate degrees. In addition, CE education action plans designed to provide graduates with skills to secure jobs supporting the global energy transition away from fossil fuels while providing living wage opportunities for underserved communities are outlined in this presentation.

The Clean Energy Education Socio-economic and Political Landscape is that:

- The government is funding clean energy research development and education for the transition.
- The clean energy technologies and manufacturing industry has unfilled positions and needs well-trained CE technicians.
- Technical education must be designed to prepare students with skills for energy sector apprenticeships and jobs.
- Social justice is advanced by providing equal access to educational investments, engaging underserved communities, and placing candidates in living wage jobs.

Research findings will identify best practices and serve as an action plan for establishing Clean Energy training. This study benefits the industry by receiving well-trained technicians to close employment gaps, academia through increased enrollment in clean energy-related industry training, and finally, students who enter the clean energy education pipeline and gain living wage employment.

English

The Marginalia of Hester Lynch Piozzi

Presenter: Lisa Berglund

Hester Lynch Piozzi (formerly Mrs. Thrale), born in Wales, was during her lifetime an ambitious and renowned writer who was particularly notable for cultivating the subversive genre of the marginal note. Throughout her life, she systematically annotated the margins of books; during her second widowhood, from 1809 to 1821, when she died at the age of 80, she often did so to present the books to friends. In marginalia, Piozzi deliberately created a permanent, albeit peripheral, record of her thoughts—and, when she annotated her own publications, of her second thoughts. Although as a literary form marginalia may seem trivial, Piozzi knew the value of her annotations, which were frequently dated and carefully inscribed in the always legible handwriting of which she was justly proud. When her library was sold following her death, the sale catalog points out those books with marginalia as an indicator of enhanced value. My research this past summer took me to six different libraries; for today's presentation I will focus on two kinds of marginalia: annotations to books written by herself and annotations in the Bible. I plan to describe the strategic use of marginalia for various roles that Piozzi assumes: a sometimes skeptical woman reader of male-authored texts; a private annotator voicing worldly experience or scholarly interests that an eighteenth-century woman could not articulate publicly; and an old woman reviewing her earthly life and preparing for the next.

Fashion and Textile Technology

3D Fabric Digitization: Enhancing Clothing Design Through Virtual Simulation

Presenter: Saharan Mamta

The fashion industry is increasingly prioritizing sustainability and technological innovation to address issues related to resource consumption, material waste, and environmental impact from traditional fabric prototyping. This study investigates the advancements in 3D digital fabric creation as a sustainable alternative, highlighting its potential to transform design practices in the industry. Using state-of-the-art software such as CLO 3D and Adobe Substance Designer, digital fabric simulations are developed to accurately mimic real-world textile properties, including texture, drape, elasticity, and light interaction, which allow for a realistic and interactive design experience in a virtual space. The study employed CLO 3D's Fabric Kit 2.0 to gather precise measurements of physical properties like weight, thickness, tension, and bending coefficient, focusing on wool (crepe) and taffeta fabrics. These fabrics were chosen as they play a significant role in another research endeavor centered on digitizing Dior's iconic bar skirt, aiming to preserve historic garment designs through modern digital techniques. By digitizing these textiles, the study will assess how specific mechanical properties and artificial intelligence (AI)-enhanced textile rendering impact the simulation's accuracy in portraying physical fabrics within virtual environments. These digital prototypes allow designers to closely visualize and test fabrics within a virtual setting, ultimately providing a sustainable solution that reduces the need for physical samples, minimizes waste, and accelerates the design-to-production timeline in fashion.

Participatory Action Research and Students' Experience with Social Justice in a Fashion History Course

Presenter: Arlesa Shephard

There has been a call to action in the field of fashion as well as dress history to incorporate more social justice within the curriculum. Participatory Action Research (PAR) has been identified as an appropriate pedagogical strategy to increase social justice awareness and representation in fashion education. PAR is a collaborative form of research that promotes social change through planning/replanning, acting, observing, and reflecting. Therefore, the purpose of this study was to evaluate students' experience with social justice awareness in a fashion history course using PAR. As part of the pedagogical process, students were involved in discussions and activities related to social justice, participated in weekly reflections, and engaged in a project where they researched an intersection of social justice and dress history. Students' social justice awareness and experience were evaluated through a focus group at the beginning of the semester and a questionnaire at the end of the semester. Four themes emerged from the focus group including barriers to access and awareness, diversity of viewpoints, equity and power structures, and facilitating change and participation. Analysis of the survey responses at the conclusion of the class resulted in five themes that provided more context on the effectiveness of pedagogical strategies and PAR. Overall, the results of this exploratory study showed that PAR helped improve students' awareness of social justice and enhanced their experience in the fashion history course.

Geosciences

Partially melted rocks at Mount Washington, NH: A record of high-melt percentage deformation

Presenter: Gary Solar

Rocks on and around Mount Washington, New Hampshire, have recorded tectonic plate deformation in association with the assembly of the supercontinent Pangaea ca. 400 million years ago. These rocks were deforming deep within the system where they were partially molten at the time. As such, they recorded deformation in a melt-rock aggregate such that melt extraction was not prevalent (e.g., minimal escape to volcanoes at the surface). This made these rocks weak, and they eventually became rocks that have been misidentified as granite by prior researchers. New mapping, structural, and geochemical data illustrate how these rocks formed from former sedimentary rocks whose sediment deposited along ancient North America (Laurentia), then deformed, metamorphosed, and then melted as they became caught in the collision zone at the closing of an ancient ocean where the current-day Atlantic is now. After 300 million years of erosion, these rocks are now exposed and illustrate a transition from unmelted, to low-percentage melted, to high-percentage melted. This preservation of higher-than-usual melt percent illustrates these rocks did not have significant melt extraction at any time, and thereby shows the result on the structure of the rocks in such a situation in collisional zones. Layered melt structures give was to homogeneous ones (hence the misidentified "granite"), but this would not have occurred if melt was permitted to evacuate to higher crustal levels, and more residual, higher-strain rocks would be there instead, similar to rocks along strike in adjacent Maine.

Season of Lake Disaster

Presenter: Stephen Vermette

Referred to as “Gales of November”, “Freshwater Furies”, or “Witch of November” there is something about the month of November which intensifies surface low-pressure systems passing over Lake Erie and the Great Lakes in general. It

is often characterized by the carnage of shipwrecks attributed to November-related storms. In the late 19th and early 20th Centuries cities like Buffalo NY had thriving harbors. With the completion of the Erie Canal (1825) Buffalo was the gateway to the west and by the turn of the 20th Century was the third-busiest port in the nation, seventh busiest in the world. The harbor was the heart of the city's commerce, and the city was intricately tied to the Great Lakes. City residents were aware of this link and keenly aware of Great Lakes weather, as your business was likely tied to the harbor and shipping, or you knew of someone who was. The poster will bring out some of the "Witch of November" stories and provide an explanation as to why the "Season of Lake Disaster" is intense, short-lived and has everything to do with timing.

Spatial and Temporal Mapping of Algal Bloom in the West Lake Erie Applying Landsat 8 and Landsat 9 Remote Sensing Data - 2013 to 2023

Presenter: Tao Tang

Algal blooms in the Lake Erie produce harmful conditions of living habitat for fish and wildlife in the water body. It also endangers human activities in the lake, such as causing beach closures and prohibition of swimming. Abundance of inputting nutrients, warming of lake temperatures owing to climate change, rising carbon dioxide concentrations, and increasing extreme precipitation, are all major factors to increase the risk of harmful algal blooms in freshwater lakes in general, and in the Lake Erie in particular. This research focus on formulating a model of freshwater algal bloom mapping index (WABMI) applying the concepts of Normalized Difference Vegetation Index (NDVI) model and reflection components of solar electromagnetic radiations (EMR) on waterborne micro-vegetation. Then, the WABMI was computationally processed for each of the Landsat 8 or Landsat 9 satellite images that were downloaded and published by the Earth Resources Observation and Science (EROS) Center, United States Geological Survey (USGS).

A total of 59 multispectral satellite images during the spring, summer, and early fall seasons in the years of 2013 through 2023 were processed using ERDAS Imagine remote sensing and digital image processing software platform. The digital maps were made with time stamps to present algal bloom conditions in the West Lake Erie. The results show the changes and oscillation of algae concentrations and blooms during the ten-year study period in the westside of the lake.

Global Engagement

Movers and Shakers: how dance can lead to active citizenship

Presenter: Joy Guarino

Now more than ever it is critical to develop students as active citizens. Research has shown that connecting academic program learning outcomes with opportunities to address local and global community priorities is a high impact, applied learning practice. Civic engaged dance practices require creative curricula, quality design, and events that benefit students and local, national, and international community organizations. Dance as a movement language has the power to create accessibility and inclusion across diverse student and community groups. When paired with the opportunity for students to recognize active citizenship through service-learning courses, independent study experiences, and choreography projects at home and abroad, practical life skills can be developed in a safe environment. Students are often unaware of the fact that they can make a difference in the world. Community engagement programs provide a lens into this reality. These models successfully support student participants and deepen respect and appreciation for diverse communities. We have experienced how global and civic engagement fosters emotional intelligence while offering a pre-professional dance experience. Graduates credit their critical analysis and problem-solving skills to participating in study abroad and community engagement programs. These skills serve graduates well as researchers, practitioners,

and educators. Students are prepared to make a difference in the world by sharing their gifts in collaboration with groups outside the university. When they can expand their knowledge by applying their skills outside of the classroom, possibilities for future teaching, performance and service are broadened.

Great Lakes Center

Look deeper: 6 years of using the Benthic Imaging System in Lake Erie

Presenters: Nikolai V. Barulin, Alexander Y. Karatayev, and Lyubov E. Burlakova

The Benthic Imaging System (BIS) is a new tool developed to assess Dreissena spp. populations in real time in large bodies of water, including the Great Lakes, especially in areas with hard substrates where traditional methods, such as Ponar grabs, are ineffective. Since the start of its use in Lake Ontario in 2018, BIS has provided valuable insights into the dynamics of Dreissena populations. In the 2019 Lake Erie survey, BIS data revealed a widespread presence of Dreissena, particularly in the Eastern Basin, where densities were significantly higher than in the Central and Western Basins. In contrast, the 2024 survey showed a notable decline in Dreissena density, particularly in the Western Basin. The Eastern Basin, however, continued to show higher Dreissena densities, consistent with the results of the 2024 survey. However, BIS has more to offer than simply estimating Dreissena density and cover. BIS may hold promise for the rapid and reliable detection of turbidity, substrate type, Dreissena spatial self-organization, Goby density, and more. To improve accuracy and capture a broader range of ecological data, we recommend integrating BIS with traditional methods, such as Ponar, in future monitoring efforts.

Exploration of the genus Nais in the Great Lakes

Presenter: Kit Hastings

Photo comparisons of the Great Lakes species of oligochaete worms belonging to the genus Nais, reviewing the differences in their chaetae and other identifying features. This exploration is part of a larger effort to make a visual guide for identifying the benthic species found in the Great Lakes during the EPA Great Lakes National Program Office Biology Monitoring Program. The Great Lakes Center has been responsible for the benthic portion of the program since 2012.

Videography as an alternative method for round goby (Neogobius melanostomus) surveys

Presenters: Lillian Denecke, Lyubov Burlakova, Alexander Karatayev, and Nikolai Barulin

The round goby (Neogobius melanostomus) is an invasive benthic fish in the Laurentian Great Lakes that caused local displacement of native benthic fishes and has become an important prey item for native and nonnative piscivores. Traditional methods used to estimate goby abundance and density, such as bottom trawls, often result in underestimates due to gobies' preference for rocky benthic areas. Videography offers an alternative solution to monitoring round goby in deep lakes. To assess goby abundance, we collected video footage using a Benthic Imaging System equipped with GoPro cameras from lakes Huron, Michigan, Erie, and Ontario as part of the CSMI benthic surveys. Gobies were most commonly found at <30 m depth with an estimated lake-wide density of 2.23 ± 0.96 SE (Ontario, 2023), 0.41 ± 0.46 (Erie, 2019), 0.15 ± 0.11 (Michigan, 2021), and 0.12 ± 0.07 (Huron, 2022). Gobies were present to a maximum depth of 76 m in Lake Ontario. Videography offers a viable alternative to traditional methods for surveys and continued monitoring of round goby abundance is vital to understanding their relative abundance, density, and depth distribution in the Great Lakes.

Notes from the Bottom

Presenters: Yola Monakhov Stockton and Lyubov E. Burlakova

Notes from the Bottom" is an experimental documentary art video which chronicles the relationship between a team of scientists working aboard a research ship and the invasive mussel whose perseverance they track each passing year. Weaving together the scientists' own video footage with imagery of work aboard the ship, the video considers economies of care, cycles of human and animal labor, and forms of knowledge across the Great Lakes ecosystem. Artist Yola Monakhov Stockton worked in collaboration with scientists from Buffalo State University's Great Lakes Center to create this video and a related group of photographs, which were exhibited at Last Projects in Los Angeles last March.

Great Lakes Center participates in the largest monitoring program of benthic invertebrates in the Great Lakes

Presenters: Lyubov Burlakova, Alexander Karatayev, Nikolai Barulin, Susan Daniel, Kit Hastings, Brianne Tulumello, and Lillian Denecke

The Great Lakes Center at Buffalo State University has been awarded over $3 million from the Environmental Protection Agency (EPA) via sub-contract through a collaboration with Cornell University. The grant, titled "Great Lakes Biology Monitoring Program: Zooplankton, Mysis, and Benthic Components for 2022-2028," continues a monitoring program in the open waters of all five Great Lakes, in which the Great Lakes Center has been involved since 2012. The EPA Great Lakes Biology Monitoring Program (GLBMP) is designed to provide managers and scientists across the Great Lakes access to biological data on zooplankton, mysids and benthos to support environmental decision-making and research. This project is a continuing collaboration between Cornell University and SUNY Buffalo State. The Great Lakes Center team, led by Lyubov Burlakova and Alexander Karatayev, is responsible for study of benthic invertebrates. Our project is combined with a benthos assessment coincident with the Cooperative Science and Monitoring Initiative (CSMI) 5-year rotation of lakes. Additionally, we are involved in several applied research projects aimed at improving the existing monitoring program, studying Great Lakes benthoscapes, and increasing our understanding of linkages between lower trophic levels and fisheries using LTM and CSMI data. Since 2012, the Great Lakes Center has received over $7 million in funding from EPA for benthic monitoring efforts. This funding allows us to continue our cutting-edge study of benthic invertebrates across all Great Lakes, making us responsible for the largest benthic monitoring program in the entire Great Lakes Region and one of the largest in the World.

Western New York Partnership for Regional Invasive Species Management (WNY PRISM): Partnering to Protect Western New York from Invasive Species

Presenters: Andrea Locke, Rachel Taylor, Brittany Hernon, Nick Farese, and Chris Pennuto

Western New York Partnership for Regional Invasive Species Management (WNY PRISM) is one of eight regional partnerships in New York State created to help prevent or minimize the harm caused by invasive species to New York's environment, economy and human health. The WNY PRISM Mission is to proactively identify, evaluate, and address invasive species priorities in western New York using a coordinated partnership of local professionals, organizations, and community members to improve, restore, and protect local aquatic and terrestrial resources. WNY PRISM has six core functions: Partner/Network Coordination, Information Management, Education and Outreach, Prevention, Early Detection and Rapid Response, and Management and Habitat Restoration. By Vfostering regional collaboration in WNY PRISM's efforts, the impact of invasive species will be minimized, and the natural resources and beauty of western New York will be preserved. WNY PRISM is hosted by the Great Lakes Center (GLC) and offers a variety of opportunities for Buffalo State University students and recent graduates. For example, WNY PRISM provides internship opportunities for students, including graduate students enrolled in the Great Lakes Environmental Science

Master of Science program. WNY PRISM hires seasonal staff each summer (e.g., Watercraft Inspection Stewards, Invasive Species Management Assistants, Education and Outreach Assistant), which are great opportunities for those looking for professional experience as they start, or prepare for, their careers. WNY PRISM also offers volunteer opportunities throughout the year where individuals can further their knowledge, skills and experience with invasive species identification, surveys and management..

Health, Nutrition, and Dietetics

Students' Perception of Cultural Competency Following a Cultural Food Demonstration

Presenter: Danielle King

Cultural competency (CC) refers to the willingness and ability to treat patients effectively and appropriately without the influence of bias, prejudice, or stereotypes. Given one's cultural beliefs may influence their health behaviors, a Registered Dietitian Nutritionist (RDN) must deliver culturally competent care to enhance positive health outcomes. The purpose of this study was to examine dietetic students' perceptions and knowledge of CC following a cultural cooking demonstration. Participants completed a survey adapted from the General Cultural Knowledge, Attitudes, and Beliefs instrument following a cultural cooking demonstration. Responses ranged from one (strongly disagree) to six (strongly agree), to 18 prompts; higher scores indicated greater CC. Four short answer questions were included. Participants (n=11) were undergraduate or graduate students in a dietetics program. The mean (± SE) score for knowledge and attitude/beliefs towards CC was 4.85 (± 0.20) and 4.70 (± 0.09), respectively; knowledge and attitudes/beliefs were significantly correlated (p=0.01). When asked to describe takeaways from the demonstration, participants described an increased awareness of their own "pre-conceived beliefs of other cultures", greater awareness "of other people's backgrounds and how they influence diet", and the importance of CC "when advising someone about their nutritional needs". A total of 63.6% of respondents strongly agreed to the desire for their dietetics program to teach more about different cultures. Experiential and applied learning opportunities, such as cultural cooking demonstrations, are crucial for the dietetics curriculum to enhance students' perceptions of CC. Expanding beyond CC to cultural humility in the dietetics curriculum is warranted for patient-centered care.

Higher Education Administration and Adult Education

Buffalo State University Institute for Augmented human Intelligence (IAhI)

Presenters: Joaquin Carbonara, Naila H Ansari, Zhen Liu, and Angela Thering

The Institute for Augmented Human Intelligence (IAHI) at Buffalo State University (BSU) aims to lead in AI integration, empowering education and research through innovation and collaboration. IAhI aims to serve as a center for AI innovation, education, and collaboration. The initiative will develop a comprehensive plan for the institute's infrastructure, staffing, and programming while securing partnerships with industry, nonprofits, and government agencies for resources and expertise. This Institute directly relates to the 2024 SUNY General Education Framework which calls for a revision of the "Information Literacy core competency to explicitly identify artificial intelligence as part of the information landscape students navigate." The IAhI will integrate AI across existing curricula, creating new courses and programs to equip students with cutting-edge skills. The institute will focus on using data science to unlock human potential, enhancing communication and information processing across quantitative, verbal, visual, and auditory skills. It aims to break down barriers between cultures, disciplines, and generations while fostering empathy

and connection among all living entities. IAhI will emphasize AI as a tool to enhance natural life, collaboration, and communication. AI methods will be adapted to BSU's context to address the institution's specific needs, with a focus on interdisciplinary research and continuing education to solve real-world challenges. IAhI is in the early stages and is seeking funding and support. We aim to create a transformative program that aligns with BSU's 2024 Strategic Plan, advancing the pillars of Student Success, Equity and Inclusion, and Community and Partnership.

Building a Digital Accessibility Hub at Buffalo State University 2024 Pilot

Presenter: Angela Thering

This poster will outline the pilot program for the Teach Access Academic Hub at Buffalo State University. The School of Education at Buffalo State University is launching a pilot program for the Teach Access Academic Hub during the 2024-2025 academic year, aiming to bridge the gap between academia and industry in digital accessibility. Teach Access, a nonprofit organization, connects its cohort members with leading accessibility and disability experts, providing funded initiatives and special programming to support their work. Faculty participating in this pilot program will engage in three key activities. First, they will undergo professional development to enhance their digital accessibility skills. Second, they will create and implement curricular materials, such as lessons or assignments, that integrate accessibility into their courses. Third, participants will engage in community-building activities where they will share best practices and present their work on promoting accessibility in education. Establishing a Teach Access Hub aligns with Buffalo State University's mission to "empower students to succeed and inspire a lifelong passion for learning." By enhancing the digital accessibility skills of faculty and students, the hub will contribute to preparing students for the digital workforce while fostering inclusivity across the university. This poster session will introduce the Teach Access Hub, promote the pilot program, and build interest among faculty and staff for the 2025-2026 cohort. Attendees will learn how they can participate in advancing accessibility education and join a growing community committed to creating more inclusive learning environments.

History and Social Studies Education

In Guaraní Lands: Paraguay as a Brazilian Tourist Destination in the Magazines and Newspapers of Brazil and Paraguay during the Stroessner Era

Presenter: Bridget María Chesterton

The regime of Alfredo Stroessner (1954-1989) hoped to attract Brazilian tourists to Paraguay. This was a dramatic change from attracting Argentine tourists in the early twentieth century. This poster argues that while the government desired Brazilian tourists, there was limited information for potential Brazilian tourists to access in Brazil and in Portuguese. Nevertheless, it is possible to reconstruct some tourist destinations and activities for Brazilian tourists from Brazilian newspaper and magazine articles, a few surviving copies of a Portuguese-language tourist guide to Paraguay, Carta del Paraguay, and technical reports. This article argues that while Brazilians had little interest in travel to Paraguay, some did make the journey to their neighboring nation and most likely enjoyed the attractions and destinations suggested by the press.

Teacher Candidates Demonstrate Ways to Instruct September 11, 2001 History

Presenters: Dana Faye Serure, Dante Grieco, Elizabeth Ward, and Logan Polkowski

To prepare future educators with the necessary knowledge and skills to effectively teach the diverse narratives of September 11th (9/11) and its aftermath, two social studies education courses provide teacher candidates the

opportunity to make instructional decisions when learning and teaching about 9/11 history. SSE teacher candidates learn and practice from a new curriculum called the History Hope which includes two inquiries that teach September 11th and post- 9/11 history using trade books (Serure, 2024). While instructing difficult knowledge (Stoddard, 2022) and hard questions (Pace, 2021) like 9/11 or the Japanese-American Mass Incarcerations, which may be challenging for all educators, teaching with children's and youth trade books offer educators a valuable starting point (Bellows & Bodle, 2017; Pitts et al., 2023). Both courses provide a comprehensive approach to equip teacher candidates with tools and techniques to navigate the complexities of teaching difficult knowledge, apply critical thinking and discourse strategies, and foster lessons in historical empathy. Three teacher candidates enrolled in SSE 309 – High School Social Studies Methods and Materials and/or SSE 407 – The Teaching of History courses present their instructional strategy choices when teaching about 9/11. The purpose included: engage learners with trade books, primary sources, and making connections with history. Each model offers a specific perspective through the lens of local history, United States history, and World history. The learning intention aimed to prepare teacher candidates with ways to instruct difficult knowledge with diverse stories from the past and present while also facilitating a class discussion.

Instructional Design and Distance Learning

Brightspace Implementation – A Tale of Teaching and Learning

Presenters: Todd Benzin, Erica Carey, Keli Garas-York, Sumana Silverheels, Ken Fujiuchi, Julie Wieczkowski, and John Draeger (Task Group members)

Buffalo State began implementing the SUNY Digital Learning Environment – Brightspace (dle.suny.edu) as the campus Learning Management System with a pilot in Fall of 2022, with a full implementation in Spring 2023. In Spring 2024, the campus SUNYDLE Brightspace Stakeholders Committee (https://instructionaldesign.buffalostate.edu/committees#SUNY_DLE_Brightspace_Stakeholders_Committee) launched a parallel survey for faculty and students about Brightspace. The surveys intended to gather feedback for the committee and Instructional Design & Distance Learning (IDDL) and understand if both faculty and students were successful in its use, met their needs, and what else they may need to better succeed in Brightspace. There were 298 student responses and 137 faculty responses. Results from the survey will be shared in addition to action items for which Instructional Design and Distance Learning and the SUNY DLE Brightspace Stakeholders Committee are now working to implement in upcoming semesters.

Institutional Readiness Report – Strategic Direction to Building the Foundation and Advance Our Online Initiative

Presenter: Meghan Pereira

In Spring 2022, Buffalo State began the SUNY Online Institutional Readiness process facilitated by SUNY Online using the Online Learning Consortium (OLC) Quality Score Card – Criteria for Excellence in the Administration of Online Programs The scorecard quality framework includes 70 indicators across 7 categories: Institutional and Administration Support, Technology Support, Course Development and Instructional Design, Teaching and Learning, Faculty Support, Student Support and Evaluation and Assessment The campus team included the Online Oversight & Readiness Committee (OOCR) 2021-2023 and campus stakeholders. The purpose of the implementation plan is to outline a comprehensive plan to ensure quality and continuous improvement in the distance learning programs offered at Buffalo State University. Through self-assessment and consensus rating, documenting campus best practices, and identifying acting items to close the gap of our online program at Buffalo State this Online Institutional Readiness Plan was created. There are 232 action items separated into four phases. The campus is currently in Phase 1 and OOCR with

campus stakeholders have begun taking on these actions to fully implement the plan by December 2026. This poster session will highlight the plan, the current phase 1 task, and the process for implementation.

Mathematics

Augmenting Intelligence: The Convergence of ML/LLMs and Statistic

Presenters: Joaquin Carbonara and Ernest Fokoue

The rapid advancements in artificial intelligence (AI), particularly machine learning (ML), neural networks (NN), and large language models as a service (LLMaaS), have begun to reshape numerous fields, with statistics being profoundly impacted. The convergence of statistics, data science (DS), and AI has led to significant breakthroughs, evidenced by recent Nobel Prizes awarded for contributions in AI and machine learning. This work explores the evolving relationship between statistics and AI, highlighting the opportunities and challenges that arise from this integration. Statistics, traditionally focused on rational decision-making under uncertainty, now interfaces with LLMs, which offer new methods for pattern recognition, data analysis, and natural language understanding. This merger has expanded the scope of statistical analysis, providing access to richer datasets and more dynamic models, while raising questions about the interpretability and validity of conclusions generated by AI systems. By analyzing the distinctions between traditional mathematical statistics (M-S) and the newly proposed natural language processing statistics (NLP-S), this research proposes a framework for integrating LLMs into statistical practice. It emphasizes the need for new methodologies and understanding to navigate this transformative era in AI-driven research and decision-making.

Dynamic Risk Factors and Intertemporal-CAPM Models

Presenter: Bruce Swan

This project proposes an interest rate model of dynamic risk factors and examines the returns of inter–temporal capital assets. The nominal pricing kernel is built on a yield-surface of federal bonds, inflation rates, and market indexes. The beta values of derivative or portfolio in the system are determined by finding correlations between asset returns and pricing kernel innovations from data. We present the calibrations of capital asset returns to the market data with the numerical fitting. The model is tested using market return, short rate, inflation, term spread, and produces the cross-sectional evidence that the value stocks have higher loadings on the cash-flow and discount-rate shocks than do growth stocks. We infer the discount-rate shocks and the cash-flow shocks, and find that the value stocks are riskier than the growth ones on the measurement of volatility shocks, which verifies and supports the asset return decomposition.

Erie County Rising Stars Summer Math Camp: Building a Foundation for Success in Middle School Math

Presenters: David Wilson and Sarah Ptak

The Rising Stars Math Camp brings together children entering grades four, five, and six, from the Amherst and Sweet Home school districts for a two-week learning experience in late August. The camp is designed to bolster student's confidence and math skills as they prepare to begin the school year. These rising stars have not experienced a high level of success in math, but as they engage in a variety of tasks designed to build understanding and connections, in learning environments led by New York State Master Teachers, they come to see themselves as young mathematicians. A collection of nationally scored items administered in a pre-post design revealed increased content knowledge over the two weeks. Perhaps of greater significance, they are excited to come to camp and learn with their peers as part of a mathematical community and enjoy thinking and reasoning about high-level math tasks. They leave the Rising

Stars Math Camp with the skills needed to start the school year off on a successful note and be seen by their peers and teachers as able and capable contributors.

Physics

Spin reorientation of magnetization in a Ho substituted TbMn6Sn6 Kagome single crystal

Presenters: Jemma DeFeo, Venkateswara Y., S. Shanmukharao Samatham, M. Scott Goodman, and Arjun K. Pathak

Kagome systems are the 2D hexagonal systems formed by the corner sharing triangles. RMn6Sn6 where R=Rare earth atom, are the one of the kagome systems that gained interest due to multiple magnetic transitions, high Curie temperature (T_C), temperature dependent spin-reorientation, perpendicular magnetization in 2D crystals and topological properties etc. In this report we study the Ho substituted TbMn6Sn6 single crystals grown by the self-flux method. Tb0.5Ho0.5Mn6Sn6 crystallizes in a typical R166 hexagonal kagome system with lattice parameters a=5.5287 Å and c=9.01649 Å. The Mn layers form a Kagome network in the basal planes. Because of the geometry frustration, they align ferromagnetic in each Kagome plane. But the interaction among the Kagome planes can vary from collinear magnetic interactions to non-collinear antiferromagnetic interactions. The temperature dependent magnetization reveals multiple magnetic transitions with the Curie temperature from collinear ferrimagnet to paramagnet beyond 400 K. The system shows spin-reorientation TSR from c to ab direction at ≈ 281 K. Below TSR they system shows an easy axis along c direction while above T_{SR} it shows easy plane along ab. The system shows one more low temperature transition at ≈28 K arising from the strong magnetic spin orbital interactions from rare earth Tb and Ho. In the T region I (lies below 28 K), the isothermal magnetization shows a metamagnetic transition at very high fields with nearly linear rise of magnetization. In the T region II (lying between 28 K and T_{SR}), MH shows metamagnetic transition followed by saturation. Above T_{SR}, MH shows a sharp rise at low fields and saturates.

Chaos on a Billiard Table - New Developments

Presenter: David Ettestad

A spinning ball on a rectangular billiard table may end up in a limit cycle or remain chaotic, depending on the aspect ratio of the table and the spin parameter. This work shows how each affect the result and predicts where packets of limit cycles of a set number of bounces will occur. It also includes some recent developments in the predictions.

Giant Anomalous and Topological Hall conductivity in a Ge substituted HoMn6Sn6 Kagome single crystal

Presenters: Y. Venkateswara, S. Shanmukharao Samatham, Jacob Casey, Christopher Burgio, Jemma DeFeo, M. Scott Goodman, and Arjun K. Pathak

In this presentation we are reporting the structural, magnetic, resistivity and Anomalous Hall and topological conductivities of a Ge doped HoMn6Sn6 Kagome lattice. A Kagome lattice is a hexagonal lattice formed by the corner sharing triangles. They gained renewed interest in the field of topological properties due to the discovery of half metals (CoSe2S2), giant anomalous Hall conductivity (RbV3Sb5), superconductivity etc. From the band structure point of view, they are expected to show the presence of intrinsic flat bands, Van Hove singularities, Dirac cones, spin-orbit driven topology etc. HoMn6Sn4Ge2 has been grown using self-flux method and centrifuging at 650 ^{o}C. It crystallizes in the hexagonal structure with lattice parameters a=5.387 Å and c=8.666 Å. Energy Dispersive X-ray

Analysis confirms the nominal composition of the elements in the crystal. The system exhibits two ferrimagnetic transitions at T_{C1}~108 K and T_{C2}~380 K respectively. The system undergoes a change in easy magnetization axis from c-direction to ab-plane above T_{C1}. Resistivity data shows a metallic nature with a RRR=19.5 indicating the good quality of the crystals. Isothermal Hall measurements show the presence of anomalous and topological contributions. A giant topological Hall conductivity of ~2800 S/cm was observed at ~125K, which is the highest value so far in R166 compounds. Notably this value is more than 7 times higher than the previously reported highest value in the LiMn6Sn6 compound belonging to R166. The topological hall resistivity exhibits two dips and one peak. Interestingly the observed topological Hall resistivity (~2.5 μΩ·cm) exceeds the previously reported giant topological Hall in YMn6Sn6 compound belonging to R166. Ab-initio calculations by Fleur DFT code predicts the ferrimagnetic ground state with spin moments of -4.22, 2.19 μB and orbital moments of -4.93, 0.02 μB on Ho and Mn ions, which are in good agreement with the experimental magnetization and earlier neutron diffraction studies.

Political Science, Public Administration, and Planning

Who Gets More Short-term Suspensions? Evidence from Buffalo Public Schools

Presenter: Ikhee Cho

School discipline is issued by school administrators to prevent disruptive students from instructional activities at a school. Although previous studies have present that there are disparities in school discipline obviously, we little know whether school administrators are more likely to punish students in a short-term suspension rather than a long-term suspension. This study examines the effect of employing a short-term suspension on disciplinary actions at public schools. In this setting, the probability of school discipline is determined by how many days of suspension assigned to students. Using a regression discontinuity design suggests that having school suspensions more than 5 days increases disciplinary actions by up to 1.2 percentage points (6 percent). In other words, students are more likely to be suspended when they are in a long-term suspension more than 5 days. The findings show that the longer suspension students receive over a short-term suspension (1 to 5 days), the more students are likely to be disciplined. It suggests that school administrators in charging of school discipline are more likely to have clear rules and obvious criteria on long-term suspensions rather than short-term ones. It is evident that disciplinary actions need better understandings of students and educators at a school.

Principal-Agent Dynamics and Policy Implementation: A Case Study of the NY SAFE Act

Presenters: Laurie Buonanno, Christopher Kuwik, and Suparna Soni

The New York Secure Ammunition and Firearms Enforcement (SAFE) Act, one of the most rigorous gun control laws in the United States, has created considerable implementation challenges for county clerks throughout New York State. This study employs stewardship theory alongside agency theory to examine the intricate relationship between the state government (principal) and county clerks (agents) tasked with the Act's local enforcement. By conducting a thematic analysis of semi-structured interviews with 11 county clerks, the research highlights key issues such as intergovernmental communication gaps, administrative strain, and the lack of consultation prior to implementation. The findings emphasize the need for better alignment between state policy directives and local administrative capabilities, with broader implications for improving policy implementation and public administration practices. A blend of trust-based and control-based approaches, grounded in agency and stewardship theory, offers insight into when governance frameworks are perceived as most effective by participants.

Psychology

Mindfulness in College Students: Associations with Anxiety

Presenters: Cassidy Baron and Kim Kamper DeMarco

In our modern-day society, anxiety runs rampant, affecting a wide range of individuals all over the globe. Between the years 1990 to 2019, anxiety rates increased from 194.9 million to 301.45 million cases globally (Javaid et al., 2023). Within a ten-year span, anxiety rates among adults ages 18-25 had the most rapid anxiety level increase compared to other generations, jumping from 7.97 to 14.66% (Goodwin et al., 2020), underlining the importance of implementing prevention and management techniques aimed at college students. This study intends to explore the effectiveness of a brief mindfulness meditation on state-anxiety and mindfulness levels with college students from Buffalo State University. To practice mindfulness means to be aware of the present moment with a curious sense of acceptance, and without judgement of the thoughts or emotions that add to one's current experience. An online guided meditation, informational mindfulness video, and in-person group workshop will be methods of mindfulness practice used to compare the effectiveness of varying techniques. Perceived stress, trait-anxiety, and self-control will also be assessed to explore moderation effects. It is hypothesized that mindfulness meditation will significantly lower state-anxiety scores for all groups, with the in-person group workshop being the highest. It is also hypothesized that mindfulness meditation practice will significantly increase mindfulness scores in students, with the in-person method being the most effective here, as well. Perceived stress, trait mindfulness, and self-control scores are hypothesized to be moderators, such that higher levels will result in mindfulness meditation to have an altered effect for students.

Blaming the Silent: Responses to Non-Reporting Rape Victims After a Second Assault

Presenter: Eyad Naseralla

The present research will examine how not reporting sexual assault influences justice responses to victims in the event another individual is assaulted. In Study 1, 130 participants read a vignette describing two instances of sexual assault committed by the same perpetrator, with the first victim either reporting or not reporting the assault to the police. Results from Study 1 indicated that participants blamed victims who did not report for the second assault and felt that victims who did not report should acknowledge their role in the second assault. Both of these effects were mediated by symbolic concerns related to power/status. Study 2 will build upon findings from Study 1 by including the victim's justification for not reporting the perpetrator. Three-hundred participants will be asked to read a vignette describing two instances of sexual assault committed by the same perpetrator, with the first victim either reporting the assault to police, not reporting the assault due to the trauma of the incident, or not reporting the assault in order to protect the perpetrator. After reading the vignettes, participants will complete measures of symbolic concerns, perceived blame, and compensatory and retributive responses to the victim.

Financial Strain and Academic Success among Male and Female College Students

Preenters: Jill M. Norvilitis and Howard M. Reid

Financial stress can impact college student success. This study examined the relationship between high school grades, college GPA, academic adjustment, and financial strain behaviors among 746 college student participants. Results indicate that financial strain moderates the relationship between high school grades and college success among males but not among females.

Early Childhood Autonomic Reactivity and Regulation: The Role of Prenatal-to-Postnatal Substance Exposure and Maternal Depressive Symptoms

Presenters: Pamela Schuetze, Olivia Bell, Madison R. Kelm, and Rina D. Eident

According to the Developmental Origins of Health and Disease (Barker, 1998), prenatal stressors have lifelong effects on biobehavioral outcomes (e.g., autonomic regulation) for children; some of these relations may be mediated by continued postnatal exposures to these stressors. Three of the most prevalent stressors especially among underprivileged low-income families are exposures to tobacco, cannabis, and maternal depressive symptoms in-utero. We hypothesized that these prenatal and postnatal risks would be associated with lower baseline respiratory sinus arrhythmia (BRSA) and higher prerejection period (BPEP), and higher RSA and lower PEP in response to a stressor at kindergarten. 247 mothers were recruited in pregnancy. Prenatal exposure was assessed using a self-report measure, maternal salivary and infant meconium assays. Postnatal tobacco exposure was indexed via child salivary assays and cannabis exposure via maternal self-report. Maternal depressive symptoms were indexed using the Beck Depression Inventory. Autonomic regulation was assessed at kindergarten using BRSA and BPEP (measured while watching an affectively neutral video) and reactivity using a frustration task. Multiple regression showed continuity from the prenatal to postnatal period for depressive symptoms (b=.57, t=11.74, p<.001), and that higher postnatal depressive symptoms predicted lower child BRSA at kindergarten (b=-.05, t=-2.49, p=.01). We also found a significant indirect effect of prenatal depressive symptoms on child BRSA via postnatal depressive symptoms, β=-.03, 95% CI [-.05, -.01]. Higher BRSA associated with higher RSA reactivity (r=.66, p<.001; see Table 2). Similarly, PEP reactivity was only associated with BPEP (r=.85; p<.001). There were no significant predictors of child BPEP.

Couples' Educational Comparability and Their Marital Satisfaction

Presenters: Jie Zhang and Wenhui Yang

Education matching has become a key principle for the construction of marriage relationships in China. Meanwhile, with the improvement of women's social status over the years, greater equality is emerging between the two sexes in traditional marriages. Questions about how educational assortative mating may transform couples' lives, marital satisfaction, and within-family gender inequality have gained increasing attention. Based on China Family Panel Studies (CFPS) 2014 data, we matched information about married men with that of their wives to study the influence of the education gradient upon marital satisfaction. Couples were grouped into three categories—educational hypergamy (wives less educated than their husbands), homogamy, and hypogamy (wives more educated than their husbands). The findings showed that educational level positively predicted marital satisfaction. Specifically, hypergamy was linked to greater satisfaction among wives, while homogamy predicted greater satisfaction among husbands.

School of the Professions

Climate Change and Global Challenges to Circular Economy

Presenter: Vida Vanchan

Climate change has affected countries and people around the world gathering increasing interests and efforts to mitigate its negative impact and to protect the environment. In doing so, generating a circular economy (CE) is often seen as one of the solutions in preventing resource depletion and promoting conservation. In-depth interviews of 29 manufacturing firms in Cambodia underscores the extent of the waste reduction networks and firm efforts in waste reduction and resource optimization.

Small Business Development Center

Minority & Women Business Enterprise (MWBE) Certification Growth Plan

Presenter: Bailey Brouillard

As an MWBE Specialized Business Advisor, I provide a direct point of contact that clients can rely on for timely and accurate responses. I also advocate for my clients to help them achieve their goals. The MWBE certification process is intricate and often confusing for small to mid-sized businesses. My expertise helps demystify the requirements and streamline the process for clients. While the state's efforts to reduce fraud are necessary, they have also made it harder for legitimate businesses to get certified. My role involves ensuring that clients' applications are thorough and accurate, increasing their chances of approval. I advocate for my clients, providing personalized support and guidance, which is crucial for those who may not have the resources to hire legal assistance. Through my direct support, clients who have struggled for years are now seeing success in their certification efforts.

Young Entrepreneurs, Big Dreams: KidBiz

Presenter: Olivia Harbol

Now in its 28th year, KidBiz continues to thrive as a dynamic platform for young entrepreneurs to showcase their creativity, business skills, and entrepreneurial spirit. This year's event reached new heights with a record number of participants, reflecting the growing enthusiasm for youth entrepreneurship in our community. Through small business ventures ranging from handmade crafts to innovative services, these aspiring Kidpreneurs collectively earned over $12,000 this season, marking a significant milestone in the program's history. "Young Entrepreneurs, Big Dreams: KidBiz" highlights the entrepreneurial journeys of these young innovators, focusing on the development of real-world skills such as financial literacy, marketing, and customer engagement. We celebrate the accomplishments of tomorrow's business leaders and explore how KidBiz is equipping young entrepreneurs to transform their dreams into thriving ventures.

Marketing Solutions and Contract Readiness

Presenter: Karina Loera, Susan McCartney, Bailey Brouillard, and Donald Williams.

This Buffalo State University certificate program is designed for existing entrepreneurs to expand and grow their business through contracts. The objective of this program is to help businesses to build their credibility and greatly increase their ability to conduct business with anchor institutions: large corporations, government entities, and prime contractors. Participants develop an effective sales pitch, a one-page capability statement and learn essentials about digital marketing, procurement and licenses and certifications.

Banking on Ideas: The Partnership Behind the Bengal Entrepreneurship Program

Presenter: Olivia Harbol

The Bengal Entrepreneurship Program, sponsored by Bank of America and hosted by the Buffalo State Small Business Development Center (SBDC), is a vital initiative aimed at fostering entrepreneurial spirit among students. This presentation highlights the key partnerships that drive the program's success, emphasizing the collaboration between financial institutions, academic departments, and community organizations. Through this partnership, the program offers students the tools, resources, and support necessary to turn innovative ideas into viable business ventures. By examining the role of each stakeholder, including the financial backing from Bank of America and the mentoring support from Buffalo State SBDC advisors, the presentation showcases how these collaborations empower students to explore entrepreneurship in a structured, supportive environment. Additionally, we will spotlight student success

stories, demonstrating how these partnerships create tangible outcomes, including new businesses, expanded skill sets, and community engagement. As the program continues to grow, its focus on strengthening connections between academia, industry, and students ensures an entrepreneurial ecosystem that thrives on collaboration and innovation. This presentation will explore the program's evolution and the role it plays in shaping the next generation of business leaders at Buffalo State, while also looking toward future opportunities for expanding this impactful initiative.

Social and Psychological Foundations of Education

Presenters: Gehan Senthinathan, Anita Senthinathan, Scott W. Phillips, S. Marlon Gayadeen, James J. Sobol, and Horacio A. Capote

Officer involved shootings (OIS) are complex occurrences, involving numerous variables influencing officers' decision-making. To our knowledge, scholarship has not explored the neural processes of officers when threat or the description of a situation was provided by a dispatcher (i.e., primed). The current study aimed to investigate this by utilizing a combined method of electroencephalography (EEG) with a shoot-don't-shoot virtual simulator.

Methods: A convenience sample of 36 law enforcement officers were randomly assigned to be presented with priming dispatch information or not. The officers either observed a knife or gun by the perpetrator.

Results: Patterns of EEG activity indicated no difference when officers were primed with threatening information. Differences were observed after the event. Weapon differences in EEG activity were observed at the time of weapon presentation.

Conclusions: An improved understanding of the neural processes involved in OIS may facilitate the development of training strategies, inform policing procedures, and investigations.

Social Work

Social Justice Faculty Externship

Presenters: Ikhee Cho and Jessica Fitzpatrick

The Social Justice Faculty Externship is an opportunity to engage faculty in learning opportunities with community organizations that provide leadership in addressing issues of social justice. The externship is also an opportunity to develop community-engaged research connections and explore curricula change to address social justice priorities. It is intended to be a mutually beneficial experience for the faculty and community partner, and the organizations benefit through faculty time and attention to a project using the faculty member's skills and experiences. Dr. Ikhee Cho partnered with Open Buffalo. Their Mission is to advance racial, economic, and ecological justice. We do so through skill building, network connecting, and activating leadership opportunities. Through this partnership, Dr. Cho identified research opportunities that would be beneficial to Open Buffalo and engaged in data collection. Dr. Jessica Fitzpatrick partnered with Bury the Violence, a grassroots organization that implemented new programming to address gaps in services for victims of intimate partner violence on Buffalo's East Side. Dr. Fitzpatrick provided guidance on documents needed to obtain funding for this new programming and suggested funding opportunities. Both Dr Cho and Dr. Fitzpatrick are appreciative of the opportunity to work alongside community partners and build collaborations with Open Buffalo, Bury the Violence, and Buffalo State University.

Shifting the focus: Domestic violence shelters moving from a macro to micro approach

Presenter: Jessica M. Fitzpatrick, Catherine M. Mazzotta, and Amy M. Manning

It has been almost 50 years since the first domestic violence shelter opened in the U.S.in 1974. Shelter programs grew out of the Battered Women's Movement (BWM). Three national surveys of DV shelters were conducted between 1978-1999, subsequently, awareness, funding, and services have grown exponentially. This national survey study addresses the need to investigate how the domestic violence shelter programs have adapted to societal and funding changes. Specifically, what is the current state of shelter programs' philosophical approaches, structures, funding and services.

Smart Smiling Project: AI for Healthier Teeth and Brighter Futures

Presenters: Gang Hu and Kimberly Zittel-Barr

Accurate diagnosis of dental diseases is essential for effective treatment. With advancements in AI, modern dental care now enables patients to self-diagnose and monitor their dental health remotely. In the proposed portal system, patients can upload intra-oral photographs for automated, remote diagnosis, allowing dentists to access real-time information. An embedded multilingual chatbot further enhances communication and patient engagement.

Beyond diagnosis, the system also facilitates the generation of 3D models for dental prosthetics. Traditional methods for creating prosthetics, such as crowns and implants, are often time-consuming, costly, and require skilled technicians. Errors during scanning or model creation can lead to expensive rework. By leveraging AI-based techniques, this project aims to reduce both the processing time and costs associated with dental prosthetics.

The goal of this research is to improve access to dental care, particularly for individuals in remote or underserved areas, while reducing the need for frequent in-person visits.

Sociology

Religion, Psychological Strain, and Suicidality in China: A Preliminary Study

Presenter: Zhang Jie

There is a lack of religiosity studies in China especially in relation to mental health and suicidality. In this research, we focus our studies on medical workers of which some studies reported to have higher stress, and to pilot our studies in this adult age-group.

Data and Methodology: Data were obtained by a questionnaire survey in a large public hospital in a big metropolitan city of China. The final sample consisted of 1012 respondents with 237 (23.4%) being male and 775 (76.6%) being female. The respondents were of three groups: (1) Believers (n = 34; 3.5%); (2) Non-Believers or Atheists (n = 547; 55.8%); and (3) Agnostics or Fence-Sitters (n = 400; 40.8%). Suicidality was measured by the NCS-Suicidality Scale, and standard measures were employed for other major variables.

Findings: In line with other recent studies in China, the religion rate among the urban adults remained low (3.5%). However, about 40.8% of the respondents chose "don't know" and could be fence-sitters on the issue of religious belief. Many of them are involved in various folk beliefs which may not be considered as religious. The religious believers were at higher risk of suicidality and depression than the atheists and the fence-sitters. However, the fence-sitters were higher than the believers and atheists on psychological strains, and they were higher on depression compared to the atheists.

Sponsored Programs

Research Involving Human Participants: Does my research need to be reviewed by the Institutional Review Board (IRB) or its representative?

Presenter: Gina Game

If your research involves human participants, the answer is yes. This includes research in which you use a database of information that someone else collected. As long as you are doing research that involves living humans, your research requires some level of review.

Why do I need to do this?

A review of all research involving human participants is required by an agreement, called a Federal-Wide Assurance, signed by SUNY Buffalo State and the federal Office of Human Research Protection. This assurance is designed to protect the rights of participants. By protecting the participants, this oversight also protects the researcher and the campus. Failure to follow federal regulations, including failing to submit a protocol for review, can have serious consequences for both the researcher and the campus.

What do I need to do first?

Researchers should refer to the Research Compliance section of the Sponsored Programs website for work instructions, templates, and the PACS Login. The SUNY RF Pre-Award and Compliance System (PACS) portal is a modular system and IRB was the first component to be activated. Researchers and administrators will benefit from this intuitive and easy-to-use system, reduce their effort on protocol creation and submission, reduce IRB turnaround times, and create IRB administrative efficiencies to better serve researchers and their study team members. Researchers and administrators will be able to access the PACS IRB module to submit their protocols. User-friendly SmartForms will guide you through the submission process. The IRB has done away with paper submissions and only accepts electronic submissions.

SPONSORED BY
Academic Affairs Office
Research and Creativity Council

FUNDED BY
Academic Affairs Office, SUNY Buffalo State

GRAPHIC DESIGN BY
Kaylene Waite, Design and Print Center

BUFFALO STATE
The State University of New York