Celebrating Discovery Across the Disciplines

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Editor

Carolyn Guzski, Ph.D.

Interim Director
Office of Undergraduate Research

The following individuals and offices are acknowledged for their many contributions:

Jesse L. Steffan-Colucci, Photographer, Marketing and Communications

Bernadette K. Matre and Samuel DeJesus, Events Management

Department and Program Coordinators (identified below)

and very special thanks to:

Kaylene Waite, Sr. Graphic Designer, Design and Print Center

Department and Program Coordinators for the 26th Annual Student Research and Creativity Conference

Lisa Marie Anselmi, Anthropology
Sarbani Banerjee, Computer Information Systems
Saziye Bayram, Mathematics
Carol Beckley, Theater
Catherine Cardina, Health, Nutrition, and Dietetics
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Reva Fish, Social & Psychological Foundations
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Jo Yudess, Center for Applied Imagination
Berg K. Miller, Social Work

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Welcome to the 26th Annual Student Research and Creativity Conference!

As the Interim President of Buffalo State University, I am delighted to welcome you all to this annual celebration to intellectual exploration and creativity. The Student Research & Creativity Conference encapsulates our unwavering commitment to academic excellence, discovery, and the pursuit of knowledge.

At Buffalo State, we strongly believe in transcending the traditional classroom boundaries. We encourage our students to delve into our laboratories, fields, studios, and stages, urging them to be creators and innovators, not just consumers of knowledge. This conference reflects our dedication to fostering an environment that encourages critical thinking, problem-solving, and creativity. The projects you will see are the culmination of countless hours of dedication, tenacity, and fruitful collaboration between our students and their faculty Mentors. Our student researchers have journeyed across academic disciplines to undertake groundbreaking projects, reflecting the diverse interests and talents that make Buffalo State a vibrant hub of intellectual and creative activity. Their research not only amplifies their classroom learning but also nurtures a passion for discovery, a drive for innovation, and an appreciation for the creative process. As we gather to celebrate the 26th year of this conference, we acknowledge the enduring importance of research and creativity to our academic journey, and beyond. These experiences shape our students' academic careers, and significantly influence their future endeavors, propelling them towards rewarding careers and impactful contributions to society.

I would like to take a moment to express my gratitude to Drs. Scott Goodman and Carolyn Guzski. Their tireless efforts and unwavering dedication to providing our undergraduates with this unique experience have been instrumental in shaping the conference. I extend my warmest congratulations to our student researchers for their extraordinary work and commend the faculty Mentors who have guided and inspired them towards this level of achievement. Your commitment to fostering research opportunities and nurturing creativity among our students is truly commendable and are the essence of a Buffalo State University education.

So, here's to a day of exploration, learning, and celebration of the exceptional work that our students have produced. I invite you all to engage with our researchers, ask them questions, and open your minds to new concepts and perspectives.

Welcome again to the 2024 Student Research & Creativity Conference. Let's embrace this wonderful opportunity for discovery.

Bonita R. Durand, Ph.D.
Interim President
Buffalo State University

Welcome!

Welcome to the 26th annual Buffalo State Student Research and Creativity Conference (SRCC). This conference is a celebration of student research, creative endeavors, and the process research conducted across many different fields, including the arts, humanities, social science, the professions, creative disciplines, and STEM fields.

Buffalo State, nationally recognized for the extent and quality of its undergraduate research and creative scholarship programs, encourages student-centered scholarly inquiry and creative activity; challenges students to pose and answer meaningful questions; provides opportunities for high-quality interactions between students and faculty; enlivens the intellectual climate within the campus community; stimulates discussions and collaborations within and across disciplines; assists students in developing problem-solving methodologies; and builds confidence to conduct and communicate research and creative activity.

The poster sessions, oral presentations, and performances of creative work reflect our dedication to excellence in teaching, research, scholarship, and creative activity. This success is due to the commitment to cultivating a collaborative and productive environment between the student and faculty Mentor. As we congratulate all the students whose work is showcased at this year's conference, let us remember the efforts of the faculty and staff Mentors. Their efforts highlight the importance and value of meaningful inquiry. On behalf of Buffalo State, I applaud the excellent research and creative works represented here and take great pride in this tradition.

Amitra A. Wall, Ph.D.
Interim Provost and Vice-President, Academic Affairs

Welcome, everyone!

Welcome to the 26th annual Student Research and Creativity Conference as this beloved campus legacy event enters its second quarter century. We honor all the students, faculty, administration, staff, family, and friends that contribute to this festive tradition and showcase of talent that culminates our spring semester each year at Buffalo State.

I am delighted to see our students continue to thrive on the challenge and joy of discovery, guided by trusted Mentors who have initiated them on aspirational journeys filled with promise. This year we expand on the traditional realms of research, scholarship, and creativity by adding Applied Learning projects to the agenda, highlighting a core strength of Buffalo State.

I thank previous OUR Director Professor M. Scott Goodman and am grateful for BSU's strong web of administrative support in contributing to the solid foundation responsible for the particularly robust participation we enjoy this year. With a rich array of research and creative endeavors reflecting the efforts of nearly 250 presenters on display, we join in congratulating students and faculty Mentors alike for their dedication to exploration across dozens of academic, artistic, educational, and professional disciplines.

Carolyn Guzski, Ph.D.
Associate Professor of Music
Interim Director, Office of Undergraduate Research

The School of Arts and Sciences welcomes students, faculty, staff, and friends to the 26th annual Student Research and Creativity Conference. This signature event is the culmination of months, if not years, of hard work by students and their faculty Mentors. Today, we celebrate the dedication and creativity of our students as we showcase graduate and undergraduate work, side by side. We also celebrate the collaborative relationships between students and Mentors, and the ideas these interactions inspire. Research and creative opportunities vary widely in the School of Arts and Sciences, and we are proud of the dedication demonstrated by our faculty as they encourage and inspire students to explore such a diversity of scholarly pursuits. The students here today have pushed the boundaries of knowledge and human expression, and I encourage everyone to take plenty of time to explore the work they have done. Congratulations to all the participants in this year's SRCC!

Kelly M. Frothingham, Ph.D.
Interim Dean, School of Arts and Sciences

On behalf of the School of The Professions, I would like to welcome students, faculty, staff, and friends of Buffalo State to the 26th Annual Student Research and Creativity Conference! This wonderful event highlights the outstanding work done across our many different academic programs, and we are extremely proud of the research you have done this year. The students and Mentors we honor today truly embody Buffalo State's mission to empower a diverse population of students to succeed in a challenging world through our ideas, our innovations, and our engagement. Congratulations to all the students participating in this inspiring event, and I sincerely thank all the faculty Mentors for their contributions to student achievement.

Carol DeNysschen, Ph.D., MBA, MPH, FAND
Dean, School of The Professions

I often describe the profession of teaching as a science, a craft, and an art, as it requires the teacher to master all three. This event celebrates all three "faces" of teaching and learning. Presenters this weekend have participated in the science that requires you to ask more questions than to offer answers and to use our intellect and professional acumen to both solve problems and create them so that knowledge can grow from curiosity. As you share with your colleague students the excitement of this pursuit, you are practicing the craft of inquiry, intellectual playfulness, and collaborative thinking. But it is in the final of the three acts of teaching where you will show your unique vision, your original thought, your creative manipulation of both the real and the fantastic. You are the scientists, the master craftsmen, and the artists. In today's demonstrations, take time to marvel at the accomplishments of your colleagues. Congratulations to student presenters and faculty Mentors!

Wendy A. Paterson, Ph.D.
Dean, School of Education

Precious Adegor, Biology

Faculty Mentor: I. Martha Skerrett, Biology

Expression and Analysis of Hydra Gap Junction Proteins

Precious Adegor is majoring in Biology and plans to graduate in the spring of 2024. She has shown a fascination with using molecular techniques to better understand biology. Through research projects she has also worked closely with the model organism Hydra and participated in electrophysiological assays of gap junction proteins. Following graduation, she intends to continue her position as a part-time phlebotomist as she works towards earning a medical degree. Her ultimate goal is to become a pediatric physician.

Through her participation in a summer research fellowship, Precious identified the expression patterns of gap junction proteins (innexins) in the freshwater cnidarian Hydra using an open access single-cell transcriptome (Hydra Cell Atlas). She also expressed two Hydra innexins in a cell system in order to determine if they form functional gap junctions. Innexin3 and Shaking B-like innexin both formed functional gap junctions after expression in Xenopus oocytes. Precious used dual cell two-electrode voltage clamp electrophysiology to study currents passing between paired oocytes and revealed that both Hydra innexins form voltage-dependent gap junction channels similar to those formed by innexins of other species. The outcomes of her research will be presented at the Buffalo State Spring Research and Creativity Celebration (SRCC) in May 2024

Catherine Alverson, Biology

Faculty Mentor: Robert Warren, Biology

Co-evolutionary Relationships between North American and Asian Plants with North American Insects

Catherine Alverson is a sophomore in Biology and is also pursuing a minor in Earth Science. She is expecting to graduate in spring of 2026. She is interested in marine biology and ecology. After graduation, she plans to pursue a master's degree in marine biology and wants to gain more experience in working on research both in the lab and in the field.

During her fellowship, Catherine investigated the relationships between eastern North American insects and plants from both eastern North America and eastern Asian to see which species the insects preferred. The eastern North American insects generally preferred the eastern North American plants as compared to the eastern Asian species.

Eric Barton, Computer Information Systems
Faculty Mentor: Gary Hu, CIS
Real-time LiDAR-based Scene Simulation System for Remote Rover

Eric Barton is a senior in Computer Information Systems expecting to graduate in spring 2024. He is interested in creating complex systems using software to solve some of the world's problems. After graduation, he will continue to pursue a master's degree in computer science at the University of Buffalo and wishes to work as a software engineer after finishing his master's degree.

During his fellowship, he developed a LiDAR system for the development of an autonomous rover. Leveraging skills in software engineering, the project establishes a novel three-dimensional environment mapping and autonomous movement, culminating in a versatile rover capable of responding to user or controller inputs. Based on his discovery, his research is in preparation for submission to a journal publisher.

Kathryn Bean, Speech-Language Pathology
Faculty Mentor: Anita Senthinathan, SLP
Impact of Sleep Disorders on Effective Communication on Individuals with Parkinson's Disease

Kathryn Bean is a driven and passionate student at SUNY Buffalo State University, where she is pursuing a major in Speech-Language Pathology (SLP) with a minor in Psychology. Set to graduate with her bachelor's degree in 2024, Kathryn is committed to furthering her education and career in the field of speech-language pathology.

This past summer, Kathryn had the privilege of collaborating with Dr. Senthinathan on a research project titled "Impact of Sleep Disorders on Effective Communication in Individuals with Parkinson's Disease". There is substantial existing knowledge about the impact of sleep disorders on speech, as well as the impact of Parkinson's disease on speech. However, the combined influence of these two factors on speech and effective communication remains an understudied area. Kathryn's research with Dr. Senthinathan aims to bridge the gap and shed light on the communication of individuals with Parkinson's disease who also experience sleep disorders and disturbances.

This research experience was a pivotal moment in her academic career, as it broadened her perspective on working with different demographics. This opportunity also gave new meaning to the importance of research and discovery for Kathryn.

Kathryn is grateful for the opportunity to collaborate with Dr. Senthinathan and contribute to the existing knowledge of Parkinson's disease. Her dedication to improving the lives of those she serves, along with her commitment to research, sets her on a promising path in the field of speech-language pathology. As she continues her academic journey and prepares to pursue a master's degree in the same field. Kathryn Bean remains steadfast in her mission to empower individuals to find their voices and communicate effectively.

Julie Benhoff, Art and Design
Faulty Mentor: Lin Xia Jiang, Art and Design
Celebrating and Embracing Small-Town Americana: Taking a Step Away from Urban America

Julie Benhoff is a senior in the BFA painting program expecting to graduate spring 2024 with a cumulative GPA of 4.00 throughout her years at Buffalo State University. Frequent award and scholarship recipient, Julie has been juried in several Art and Design Department Student Exhibitions at Buffalo State University. She has been interested in painting and other forms of art; specifically representational portraits done in oil. She plans to further her studies in the future.

During her fellowship, she created eight landscape paintings using the Plein Air technique to document and celebrate the authenticity and charm of Small-Town Americana. Ms. Benhoff painted several sites in the Buffalo and Mohawk Valley Region that she believed to showcase the essence of small-town, in hopes of displaying the similarities between the two areas.

Winifred Benson, Speech-Language Pathology/Philosophy
Faulty Mentor: Jason Grinnell, Philosophy
Monster Experiment's Influence on the ASHA Code of Ethics

Winifred Benson is a senior in Speech-Language Pathology and Philosophy expecting to graduate in spring 2024. She has been interested in bioethics, specifically within the realm of speech-language pathology. After graduation, she will continue to pursue a master's degree in speech-language pathology and wishes to work either in a NICU or with stroke victims after finishing her master's degree.

During her research, she did a literary review and study of an experiment done in the 1930s, dubbed the "Monster Experiment" and its influence on the American Speech-Language-Hearing Association's Code of Ethics. She also looked at the Code through the lens of biomedical principles. She found that the ASHA Code of Ethics does hold up rather well with the biomedical principles, however there is room for improvement within the language of the Code. There is much ambiguity, which can create unintentional professional malpractice. She advises that there could be a review of the language of the Code to better elucidate what optimal protecting of welfare means. This could create clearer professional standards about clinical competence and the professional standards of speech-language pathology. Her research will be presented at the Student Research and Creativity Conference in May 2024.

Thomas C. Foote, Individualized Studies
Faculty Mentor: Tara Nahabetian, Art and Design
Repair Techniques on Cymbals Utilizing a Micro Arc Pulse Welder

Thomas C. Foote is graduating in June 2024 with a BA in Individualized Studies.

After 40 years as an Ophthalmic Dispenser (Optician) he has returned to Buffalo State to endeavor in his first love, metalsmithing. In Fall of 2019, Tom returned to where his original metal educational began, to expand and improve the products and art he is creating. He diligently works repurposing existing damaged cymbals into usable unique cymbals and other percussion instruments.

During his research, Tom concluded that micro arc pulse welding is a viable option when repairing broken B20 bronze cymbals and because of his research, he continues to experiment with the preparation and finishing of the repaired cymbal to bring the restoration close to its original sound and visual appeal. He has successfully begun to do demonstrations at trade shows and retail music stores.

Taha Hussain Ghadeer
Faulty Mentor: Naomi McKay, Psychology
Motivation, Experience and Anxiety

Taha Ghadeer is a senior in Psychology expecting to graduate in spring 2024. In addition to being an engaged student, he is also an active member of the McKay Physiological Psychology Laboratory. After graduation, Mr. Ghadeer is interested in applying to graduate school in the field of psychology specifically in personality psychology and personality disorders.

During his fellowship, Mr. Ghadeer discovered that experience and anxiety have a strong negative correlation. This shows that one's experiences assist in decreasing anxiety in unrelated situations. He also discovered that there was only a weak positive correlation between motivation and anxiety indicating that motivation has less of a relationship with how anxious we are during stress.

Dylan Maciejewski, Geosciences
Faculty Mentor: Gary Solar, Geosciences
Field and Laboratory Study of the Nature of the Migmatite Front at the Foot of Mount Washington, Gorham, New Hampshire.

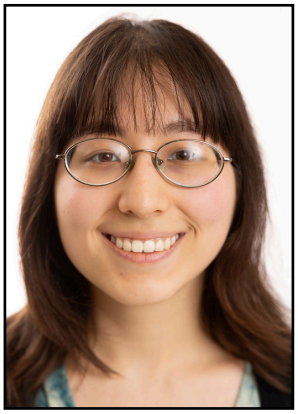
Dylan is a senior in the Geosciences department, he graduated in December 2023. After graduating from Buffalo State University, he plans on pursuing his masters and or his doctorate in Geology. He is interested in doing more field and laboratory work related to Geochronology or Geochemistry. He hopes to better understand geology worldwide by doing more field and laboratory work in the future.

The research that was undertaken over the summer was to investigate and prosecute the nature of a migmatite front between metasedimentary and migmatite rocks associated with the White Mountains of New Hampshire along the Peabody River in northern New Hampshire. Field work focused on field relations between stations (exposed outcrops) and field orientation of mineral patterns. The laboratory component focused on the microstructural and microtextural relations between outcrops. The field and laboratory work done for this research showed a difference in mineral composition and grain size from samples collected along the Peabody River, and in comparison, to the rock proximity to the migmatite front. The difference in mineral composition and grain size can help determine the factors of deformation experienced by these rocks and relate them to their proximity to the migmatite front.

Andriy Martynyshyn, Computer Information Systems
Faculty Mentor: Sarbani Banerjee, CIS
Internet Store: A Software Development Project

Andriy Martynyshyn is a senior in Computer Information Systems expecting to graduate in fall 2023. He has been interested in web software development. After graduation and a one-year break, he will continue to pursue a master's degree in data science and analytics at Buffalo State University. He wishes to work as software developer in one of large companies in Buffalo area after or during his master's degree.

During his fellowship, he delved deeply into the intricate interplay between the pivotal components of a database, server, and client interface. This immersive exploration led to the conception and development of a prototypical internet store that showcased the intricate dynamics between these entities, shedding light on their synergistic functionality. By meticulously crafting this illustrative internet store, he not only illuminated the nuanced connections between the database, server, and client but also exemplified how they collaborate to deliver a seamless and engaging user experience.



Jennifer Mitsuyama Brandenberger, Psychology
Faculty Mentor: Kimberly Kamper-DeMarco, Psychology
Domains of Child Executive Function and Parenting Stress in Preschool-Aged Children

Jennifer Mitsuyama Brandenberger is a senior in psychology expecting to graduate in fall 2023. She has been involved in the Relationships and Social Development Lab and is interested in developmental outcomes cross-culturally. After graduation, she plans to pursue a Ph.D degree in Clinical Psychology.

During her fellowship, she discovered firsthand the skills necessary to organize information from a larger study. Multiple measures of executive function found that the source of information can drastically affect the results of a study, and how parent-reports of behavior and stress coincide with child performance in tasks involving inhibition and behavioral regulation.

Collin O'Brien, Communication
Faculty Mentor: Dorothea Braemer, Communication
Connie

Collin O'Brien is a Media Production major with a minor in Photography at Buffalo State University. He is scheduled to receive his BA degree in the Spring of 2024. He is interested in urban photography, social justice, and editing. Collin is a member of Buffalo State's FCC-licensed radio station WBNY, for which he has edited several programs.

During his fellowship, he worked as an assistant editor to Dorothea Braemer for the documentary "Connie." Connie follows the life of Connie Eve as she gets ready to be crowned queen of Juneteenth during which an interview takes place to get to know Connie's backstory.

Allison Panek, Geosciences
Faculty Mentor: Stephen Vermette, Geosciences
Hiram Lake Water Quality Assessment

Allison Panek is a junior in earth sciences and environmental geography expecting to graduate in spring 2025. She is interested in aquatic sciences in terms of assessing water quality in relation to how aquatic ecosystems affect each other. She is still in the process of making a plan for post-graduation.

During her fellowship, she conducted water testing at three manmade lakes — Acacia, Hiram, and Solomon — for the Hiram Lake Club, a private community of cottage owners located in Wyoming County, NY. Over the course of June 1st to August 17th, the sampling of dissolved oxygen, temperature, acidity, dissolved solids, suspended solids, nitrate, phosphate, hardness, secchi depth, E. coli, and BOD5 took place in the three lakes. On August 6th, a "Community Day" was held by the residents where she got the opportunity to present her findings thus far. In analyzing the data, she found that there are little to no harmful outside factors impacting the three lakes, and that each lake water quality parameters generally fit within levels of criteria of "good" to "excellent" quality.

Maria Phelps, Exceptional Education

Faculty Mentor: Christopher Shively, Elementary Education, Literacy, and Educational Leadership

"Powers of Assumption": An Investigation of the Effects of Expectations Placed Upon Math Students

Maria Phelps is a senior in the Exceptional Education department and will graduate in the Fall of 2023. She has been interested in tracking the causes of low confidence in students and their effects in order to negate negative student outcomes. After graduation, she will pursue a master's degree in Exceptional Education at Buffalo State and wishes to work as a special education.

During her fellowship, Maria discovered that there was a relationship between negative early mathematical experiences and feelings of low efficacy or shame. Among the participants interviewed, no participant felt regret about their lower-track math class besides our researcher. Her research will be presented at the Student Research and Creativity Conference in May 2024. Maria's ideas will be studied further, and a manuscript will be prepared for publication and presentation at the National Council of Teachers of Mathematics Conference in 2024.

Danielle Ralph, Psychology

Faculty Mentor: Robert Delprino, Psychology

Working University Students' Perceptions of and Reactions to Workplace Bullying

Danielle Ralph is a senior pursuing a Bachelor of Science degree in psychology (spring 2024) with a concentration in Industrial/Organizational Psychology. She has also been accepted into the graduate program in adult education (spring 2026) at Buffalo State University. She previously worked in the field of learning and development and will return to that field after finishing her master's degree.

During her fellowship, she studied how early-career employees perceive and react to workplace bullying. She discovered that these employees are most likely to intervene on behalf of the victim when they feel that they have the necessary skills to do so and when they feel that bullying is a real problem that should be addressed. Based on her findings, organizations should ensure their employees recognize workplace bullying as a true issue and should teach employees the skills needed to intervene. Her research has been submitted to 2023 Work, Stress, and Health Conference and will also be submitted to the 2024 Western New York Undergraduate Psychology Conference.

Sonia B. Swann, Social Work/Political Science

Faculty Mentor: Amy R. Manning, Social Work

Exploring the Unknown Information About Preparing for Death and Dying

Sonia is currently a senior in Social Work graduating in spring 2024. She has been interested in developing and applying a new model of support for individuals to plan for their end of life. After graduation, she will continue to University at Buffalo to their accelerated MSW/Ph.D. program with a goal of working with protected populations and advocate for social and policy changes after finishing her Doctorate.

During her fellowship, Sonia discovered the disparities regarding correct and purposeful information of planning for the end of life. Data analysis indicates that these disparities are found across all genders, races and ages. The data will be used in the next stages of research to help build a foundation to alter the societal relationship with the taboos of discussing death and dying. Her research will be presented at the SURC and the SRCC conferences in April and a research article based on her discovery is in preparation for submission for publication.

Artistic Presentations

Celebrating and Embracing Small-Town Americana: Taking a Step Away from Urban America

Julie Benhoff
Faculty Mentor: Lin Xia Jiang, Art and Design

In a world increasingly affected by urban sprawl and industrialization, this artistic project delves into the celebration and encapsulation of Small-Town Americana through eight landscape paintings in the Buffalo and Mohawk Valley regions. Done in oil paint in the Plein Air technique, each artwork strives to capture and highlight the authenticity and charm of these towns in hopes of striking nostalgia and mood within viewers. Four of the eight paintings were done at various historical locations in Buffalo, New York, such as The Canalside, Riverworks, The Cobblestone District, and Glen Park. The remaining four were done in various towns and villages in the Mohawk Valley Region, like Herkimer, Schuyler, and Clinton. All of the paintings were completed through the method and process of plein air painting, the act of painting outside where the subject matter is in full view. Plein air painting implies site and time specific. This technique requires artists to work quickly and efficiently to capture the changing light, colors, and atmosphere of their surroundings. It is arguably the best way to capture a scene for what it truly is at that moment. Although Buffalo is deemed more urban compared to the counties in the Mohawk Valley, numerous similarities are present when comparing the two. This series of landscape paintings not only celebrates the visual beauty of a small town but also serves as a documentation of the town's history, spirit, and community.

Interpersonal: Thesis Film

Cydney Ramos
Faculty Mentor: Dorothea Braemer, Communication

Interpersonal is a short thesis film that navigates relationships, mental illness and addiction. It's a psychological horror that takes place in current day Upstate New York, exploring the life of Jack in one night as he spirals into a manic episode due to the death of his girlfriend Shay. One night Jack is forced to confront his inner demons and face his jealously of his two best friends, Brin and Charlie.

NightCap: LGBT Short Film

Angel Barber
Faculty Mentor: Macy Todd, English

My film nightcap strives to illuminate areas of gay culture that I believe are neglected within popular media, including the intense isolation and shame specific to the gay male experience and the general lack of connection afforded to those who's general social interaction is entirely presupposed on sexual encounters. While the story has this general aim in terms of its themes, I also wanted to tell a human story about a gay man and his struggles, as these struggles are often misunderstood by wider society and bridging this gap can lead to productive conversation about why things are the way that they are within these communities. I plan to present this 15-minute short film and allow for questions at the end.

School Haze: A Musical Comedy Television Pilot

Madeline Root, Robert Marshall
Faculty Mentor: Aaron Daniel Annas, Television and Film Arts

We plan to present our Senior Capstone project, ***School Haze***, an original musical comedy television pilot. ***School Haze*** tells the story of three high schoolers who turn to a life of crime in order to save their school's singing club. During the fall semester at Buffalo State, seniors in the Television and Film Arts program write, film, and produce an original television pilot. While this project is completed by the TFA program each fall, the 2023 pilot is special because it is the first year that a musical has been created. This experience offered many students new challenges as they learn the ins and outs of filmmaking, with the opportunity to work as part of a crew on a film set in the real world.

Oral Presentations

The Effect of Polymer Blends on the In-Vitro Drug Release and Degradation of Drug-Loaded Microparticles

Joyce Assaf
Faculty Mentor: Sandra M. Borbor-Sawyer, Biology

Drug delivery systems (DDS) transport pharmaceutical drugs in the body to desired tissues, organs, cells, and subcellular organs for drug release and absorption, thereby achieving the desired therapeutic effect. In tumor chemotherapy, drug delivery systems offer numerous advantages, including improved bioavailability, biodistribution, chemical stability of the drug, and decreased side effects. Polymers have been used extensively in drug delivery applications ranging from targeted tumor therapy to immune system modulation. Despite these remarkable developments, more research is required to control the properties and performance of polymer-based DDS. In this study, microparticles formulated by blending poly(lactide-co-glycolic acid) (PLGA) and poly (ethylene glycol) (PEG) using a solvent-evaporation method were investigated for drug delivery applications. A model drug was incorporated into the PLGA-PEG microparticles, and the microstructural properties, the in-vitro drug release, and degradation mechanisms of the microparticles were determined. The implications of the results are discussed for the potential applications of PLGA-PEG microparticles in drug delivery applications.

The Cockroach Spiral Problem Extension

Gavin Cognion
Faculty Mentor: Hongliang Xu, Mathematics

The proposed project is to explore mathematical modeling, differential equations, and Mathematica for "The Cockroach Problem." This problem assumes four cockroaches, initially stationed at different corners of a square, all moving, with constant initial speed, clockwise towards their adjacent counterpart. What are the trajectories of the cockroaches? By exploring the relationship between the slope of the tangent line and the slope of the line that connects two cockroaches, we derive a system of differential equations, with initial conditions (positions and speed), that describes the movement of the cockroaches. When solved, we get four parametric curves for the cockroaches' paths all converging towards each other in an infinite spiral. Furthermore, we extend this problem by setting certain conditions and asking questions on what happens when these conditions are set. The first extension asks what will happen when one of the cockroaches stops midway through its path? Will it force other cockroaches to correct their path? The second extension asks what will happen when this particular cockroach, after being stopped for a brief period of time, resumes its movement and doubles its initial speed? What will happen to other cockroaches? We will present our findings, including mathematical models, derivation of systems of differential equations, solutions of the system of differential equations with initial conditions, dynamic display of cockroaches' movements using software Mathematica, etc.

College Basketball Ratings

Trevor Cohn
Faculty Mentor: Robin Sanders, Mathematics

My talk is on the various college basketball rating systems. I start off by explaining why these rating systems were created and their role in the selection process for the Division I NCAA Tournament. I will talk about the history and evolution/improvements of mathematical basketball rating systems and sports rating systems in general. I go into which statistics are factored into which rating system and which the selection committee appears to favor in terms of which teams get selected and where they get seeded. I will talk about which systems I think are better and give reasons as to why I think that. I have filled out NCAA Tournament brackets entirely based on picking the team with the higher ranking in different rating systems (NET, BPI, KenPom, etc.) and will follow along in the next two weeks and compare the results.

From Taboo to Acceptance: The Evolution of Male Nudity in Mainstream Cinema

Lisa Czapla
Faculty Mentor: Michael I. Niman, Communication

This presentation will examine the history of male nudity in cinema, the changing attitudes of masculinity, the impact of directors who have tried to change the sexist ways of the cinema, the problems of the MPAA [Motion Picture Association of America], and the evolution of contemporary cinema.

Repair Techniques on Cymbals Utilizing a Micro Arc Pulse Welder

Thomas C. Foote
Faculty Mentor: Tara J. Nahabetian, Art and Design

For this project, my intent is to develop a repair process using micro welding technology that restores or keeps the sonic and aesthetic value of cymbals and metal percussive instruments. Cymbal artists have been trying various techniques to make broken cymbals functional again. These techniques are mostly subtractive in nature. The best repair to a broken item would be to reconnect the materials using an extremely low heat or very concentrated heat method. However, excessive heat will misshape the cymbal and ruin the sonic qualities. In addition to concerns of sound quality, musicians also like to have a traditional look to the repair. Broken cymbals were collected from different decades, prepared, and analyzed under electron microscope for metallurgical content. The broken cymbals in the study were recorded in their broken state, micro welded, tested for weld integrity and recorded again. To repair the cymbals, a filler material of copper or B20 material was used when tiny gaps were presented after first welding. Then to test the results of the weld, sample repaired items were released to professional drummers for trial and evaluation. The perceived effect of the repaired cymbal is close to the original sound produced by a like cymbal. Micro arc pulse welding is a practical way when repairing broken B20 bronze cymbals. More investigation is needed into the preparation and finishing of the repair to get the repaired item even closer to its original sound and visual appeal. The micro welding process can also be used as a decorative technique.

Performance Techniques

Tehillah Hill, Aleksandra Tirone, Sebastiano Lombardo
Faculty Mentor: Ho Eui Holly Bewlay, Music

As a result of a service-learning opportunity available during the Fall 2023 semester, this project was a great way to get used to singing in front of people and receive feedback from new eyes and ears. I feel like it's a necessity to seek good feedback occasionally, because most musicians are their biggest critics. This was a good opportunity to self-reflect and see what I must work on while I perform. I know that I needed to work more on the song itself, but it was good to know that I was able to portray the emotions needed. I must make sure to take a deep breath beforehand to get my nerves together, improve at certain transitions between registers at some points, and more. What surprised me was how engaged and invested audiences were during each performance. I loved how they reacted during the performance and after. If I was given another opportunity, I would do it again, because I honestly believe that performing is an essential thing, to see how you will handle a crowd, in addition to a classroom, as an artist and as a teacher. I wish I was able to connect with some of the audience members a little deeper through my performance. This experience helped me to prepare to enter a vocal competition at the NATS-National Association of Teachers of Singing Eastern Region. The presentation will include the process, experience, and reflection of the performance techniques developed by three presenters.

Prince Rupert's Cube

Jianhao Liu
Faculty Mentor: Robin Sanders, Mathematics

Prince Rupert of the Rhine is remembered for posing the following problem: Can we pass a larger cube through the same or smaller size one without breaking the latter? Surprisingly, the answer is yes, it is indeed possible for a cube to pass through another cube with proper direction, and the largest cube that can pass through is approximately 6% larger than the original. The solution to this geometrical puzzle relies on understanding the properties of three-dimensional objects and their orthogonal projections. Rotation transformations and their corresponding matrices are used to map the vertices of the cube onto different planes. With different angles of rotation around two axes, mathematicians have been able to calculate the area of the orthogonal projection of a cube onto a plane and use this to solve Rupert's question. The analysis begins with the calculation of rotational matrices for specific angles and proceeds to determine the projected area on the plane with a target direction. In my talk, I will utilize interactive software to illustrate the transformations of the cube in real-time, showing how the cube's orientation and the calculated cross-sectional areas change with different rotations dynamically. This can make the process more intuitive to help the audience better understand the mathematical principles. It will also help them understand how modern computational tools come together with geometric strategies to solve an old problem like this, filling the gap between abstract theory and visual representation.

Sports Analytics in Baseball

Audra Marley
Faculty Mentor: Joaquin Carbonara, Mathematics

Sports analytics have been used in baseball for a long time now, starting as early as 1964, but flourished even more with the release of ***Moneyball*** in 2003. There have been many changes to how analytics are used, as well as what data scientists see as the most important statistics to be successful. My goal is to see what statistics have majorly changed over time. Using data from the MLB, I want to see which batting statistics are the most important to teams today, and which were the most important at the start of the "Analytics Era" in the early 2000s. There are many arguments that analytics is "ruining baseball." My theory is that analytics is just changing the way the game is played, and has created a game that is more exciting than ever to watch.

Overcoming Cultures: DEI & LGBTQIA+ in the Workplace

Mollie McCann Poblocki
Faculty Mentor: Michael I. Niman, Communication/Women & Gender Studies

Diversity, Equity, and Inclusion (DEI) in the workplace has become an increasingly important topic for organizations across industries. As businesses recognize the value of a diverse workforce, they are taking steps to create more inclusive and equitable environments. My paper explores the significance of DEI initiatives and their impact on organizational success. Research has shown that diverse teams outperform homogeneous ones in terms of innovation, problem-solving, and decision-making. By fostering a culture of inclusivity, organizations can tap into a wider pool of talent, perspectives, and experiences. DEI initiatives aim to create a level playing field where all employees have equal opportunities for growth, development, and advancement, regardless of their background, gender, race, or other characteristics. Implementing effective DEI strategies involves multifaceted approaches such as, reviewing hiring practices to mitigate bias, providing diversity training for employees and leaders, and establishing employee resource groups to support underrepresented communities. Additionally, organizations must examine their policies and procedures to identify and address systemic barriers to inclusion. The benefits of successful DEI initiatives extend beyond improved team performance. Companies with strong DEI practices often experience higher employee engagement, reduced turnover rates, and enhanced brand reputation. Moreover, a commitment to DEI helps organizations better understand and serve diverse customer bases, leading to increased market share and profitability. My paper demonstrates that DEI is both a moral imperative and a business necessity. Prioritizing diversity, equity, and inclusion creates more vibrant, innovative, and successful workforces, ultimately driving long-term success in an increasingly diverse global marketplace.

The Effects that Video Editing has on the Emotions

Andrew Novak
Faculty Mentor: Michael I. Niman, Communication

My paper explores how video editing can manipulate its audience. Generally, viewers tend to not consciously notice editing in films and other motion-based media. They don't know why a specific scene hits them so hard emotionally in a film or trailer. Editing is central to all motion media. My research documents and explains how video editing actions such as choice of shot, musical choices, shot length, and continuity, are integral to constructing film and video media and in placing the audience into an immersive emotionally stimulating media experience. Studies show that the shot length of a scene can control view involvement and excitement or lack thereof. Short cuts can also aid in keeping the audience stimulated and attentive. This is especially true in our fast-paced media world. Other studies state that music is a strong component in manipulating emotions. Video editing pieces the film together, with good editing the audience can be emotionally involved with the film thus keeping their attention. My paper examines the importance of various video editing techniques in heightening the audience's emotional connection to the characters and narrative as well as keeping their attention.

Indian Residential Schools and MMIW (Missing Murdered Indigenous Women)

Carissa Stone
Faculty Mentor: Roy W. Bakos, English

My presentation is dedicated to the Indian Residential Schools and MMIW (Missing Murdered Indigenous Women). I conducted research by obtaining in-person information, conducting surveys on live people/survivors of residential schools, then viewing old building remnants ("museums") of residential schools. This project is meant to bring awareness and education to the public about Indian Residential Schools, and the growing problem of MMIW.

Geometric Probability

Samantha Schafer
Faculty Mentor: Robin Sanders, Mathematics

The idea of Geometric Probability dates back centuries. Georges-Louis Leclerc, later known and referred to as Comte de Buffon (1707–1788), is recognized as the founder of this area of mathematics, but the first known problem of this field came from Isaac Newton (1643-1727), which was published in 1967. This field is an amazing tool that helps solve and understand problems that have infinite outcomes because one can measure the number of outcomes geometrically in terms of length, area, volume, etc. Newton's problem is significant because it shows that probability can be irrational, which directly relates to Newton's notion that probabilities can be irrational, in other words, infinite. It is important to first understand Newton's idea showing how probability can be irrational because it is the background of the field of geometric probability. This background is extremely important when understanding Buffon's teachings and his famous Needle Problem. This paper will look into the importance of Newton's problem that first introduces the idea of geometric probability, Buffon's Needle Problem, and more of Buffon's problems that use geometry to solve problems with infinite outcomes. With that understanding comes Buffon's Needle Problem, which estimates ***pi***, the most known and common irrational number in the world of mathematics.

Investing in the Stock Market

Lillian Strusienski
Faculty Mentor: Joaquin Carbonara, Applied Mathematics

Over the past fifteen years, the stock market has a compounded annual growth of approximately 13.8%, attracting an increased number of investors daily. Analyzing the stock market includes exploring different trends and patterns that are critical for making buying and selling decisions. It involves gathering and organizing stock data to come up with efficient and effective investment decisions. It also includes examining many mathematical calculations to understand which are best for different scenarios, along with exploring mathematical and statistical models that help with qualitative data analysis, resulting in the aim to boost investment returns in the stock market. Specifically, I will focus on identifying technical indicators like moving averages and Bollinger Bands® to predict price movements. The use of Bollinger Bands® is very useful because it is used to help investors find potential buying and selling opportunities. It uses the simple moving average of the closing price over the specified days (usually 20). This then serves as the middle band or the base for the upper and lower bands which are calculated by adding a specific number of standard deviations to the middle band. The standard deviation in this situation is the statistical measure that is the variation in price. I then will also explore statistical models like regression analysis to evaluate the relationship between stock's price and other factors such as company earnings. My ultimate goal is to develop data-informed strategies for maximum investment returns.

Generalizing the Quadratic Equation to Polynomials of Degree 3 and Degree 4

Mouhamed Syll
Faculty Mentor: Robin Sanders, Mathematics

Everyone is familiar with the quadratic formula from high school and how it's used to find the exact value of the roots of a quadratic equation. The obvious question is: Are there corresponding formulas for upper degree polynomials? And the answer is, yes there are formulas for solving polynomials of degree 3 and degree 4, but there is no general formula for solving polynomial equations of degree 5 or higher using only radicals, as proven by Galois theory. The first cubic formula, derived by Niccolò Fontana Tartaglia, involves the use of trigonometric functions to find the roots of a cubic equation. Later, the formula was refined by Gerolamo Cardano and Lodovico Ferrari, leading to a more algebraic form known as Cardano's formula. My project focuses on the history of cubic and quartic functions and their derivations. I will present the derivation of one of the cubic formulas and quartic formulas which was derived by Lodovico Ferrari in 1540. He was a mathematician who worked with Gerolamo Cardano and was able to solve the general quartic equation using a combination of trigonometric and algebraic methods. This solution method laid the foundation for further developments in algebra and the study of polynomial equations. If time allows, I'll look at the perspective of the quartic formula.

The Secretary Problem

Nicole Wopperer
Faculty Mentor: Robin Sanders, Mathematics

The Secretary Problem is posed as the following: Suppose a company is interviewing candidates for a position that is available. There are multiple candidates and the interviewer has to decide whether or not to hire them or move on to the next person. Once moved on to the next candidate, there is no going back to them, and if one person is hired there is no knowing what the other candidates may have offered. The idea behind this problem is finding one of the best candidates without interviewing everybody. The so-called "solution" to this problem is known as the 37% rule. This rule states that after you have exhausted 37% of your options, that is your best choice. The law of 1/e is included in this solution where 1/e is approximately 37%. This solution comes from the proof of the Optimal Stopping Theorem, which is concerned with finding the correct stopping time in order to maximize outcomes. Finally, I will be discussing the game of Googol, which is another variation of the Secretary Problem. This game involves two players where one writes positive integers on individual pieces of paper. The other player then has to flip over each piece one by one and decide if that is the largest number, or if there is another one out there. This game takes the same approach using the Optimal Stopping Theorem.

Poster Presentations

"We Are Fashion Too": Shed Light On Black Designers Finally Getting Our Flowers

Caroline Abreu, Ja'Don Williams, Matthew Villalobos, Ricky Watkins
Faculty Mentor: Arlesa Shephard, Fashion and Textile Technology

Throughout this project, we intend to draw more attention to Black culture in the fashion industry and address the underappreciation of minority designers. Our project highlights notable designers such as Virgil Abloh & Dapper Dan. We aspire to develop a narrative that addresses the cultural relevance of clothing across various diasporic communities. We will closely study the origins and evolution of Black culture in the fashion industry. To emphasize the important contributions made to the industry, our research will utilize the use of articles, social media, and film resources. Our goal is to bring Black fashion designers' voices to awareness by highlighting their successes and struggles. This crucial element breaks down biases and showcases the wide range of talent that the Black fashion industry has to offer. Furthermore, we investigate how Black culture uses fashion as a powerful means of identity and cultural expression. This involves analyzing how modern designers like Virgil and Dan effectively combine cultural elements into their designs as well as diving deeply into the traditional components found in Black fashion. Our project seeks to close the existing gap in the recognition of minority cultures by altering views and promoting inclusivity in the fashion industry. The objective is to create a space where people embrace diversity and Black culture's richness is acknowledged as a significant and respected part of the world of fashion. This project aims to inspire good change within the industry and pave the way for a more inclusive and culturally diverse future for fashion.

Expression and Analysis of Hydra Gap Junction Proteins

Oghenerukevwe Adegor
Faculty Mentor: I. Martha Skerrett, Biology

Hydra is a small freshwater cnidarian best known for its capacity to regenerate. The cells of Hydra are presumed to be coupled to one another through gap junctions composed of innexin proteins, because innexins are the gap junction proteins of invertebrates. In 2010 the genome of Hydra was sequenced revealing 17 innexin genes [Chapman et al]. Thus far there is no published information about the structure and function of Hydra innexins, and it was our goal to use bioinformatic analysis to understand their diversity and expression patterns. We also aimed to express Hydra innexins in cells and use electrophysiology to better understand their function. We used the National Center for Biotechnology Information to locate gene sequences, and corresponding gene numbers to investigate expression patterns using the Hydra Cell Atlas (a publicly available single cell transcriptome). We confirmed that innexin genes coded for proteins with four transmembrane domains, as expected and performed amino acid alignments to gain insight into the differences between genes and between splice variants of the same gene. Bioinformatic analysis revealed specific expression patterns for several innexins, including expression specific to the nerve net, endoderm and ectoderm. To understand function we expressed two innexins, innexin 3 (hInx3) and Shaking B-like innexin (hShB-like) in Xenopus oocytes. Both formed functional gap junctions allowing us to compare coupling levels and voltage-dependence of the channels. The hInx3, which is expressed in the ectoderm (including the basal disc and tentacles) formed robust gap junctions. The hShB-like innexin formed gap junctions, although coupling levels were not as high, and we have not yet determined its expression pattern.

TimeHolder - A Seamless Watch Database

Shadman Ahmed
Faculty Mentor: Sarbani Banerjee, Computer Information Systems

This research project aims to develop a cross-platform software solution for watch traders, enthusiasts, and professionals. Given the increasing interest in horology and the diverse array of watch models and brands available, there is a need for a unified platform to organize and analyze watch-related information. By leveraging SQLite as the database backend, this project seeks to provide users with a seamless experience in accessing and manipulating watch data across multiple devices. The project will utilize a combination of programming languages and frameworks tailored to each platform, including Python with SQLite for Windows, Swift with SQLite.swift for iOS, and Swift with SQLite.swift or CoreData for macOS. The software will be developed using appropriate Integrated Development Environments (IDEs) such as Xcode for iOS and macOS, and Visual Studio Code or

PyCharm for Windows. Network and hardware requirements will be minimal, with the software primarily relying on local storage and basic networking capabilities for synchronization. Expected results include the delivery of a user-friendly software application that allows users to efficiently browse, search, and manage watch data across different operating systems. Users can expect a robust and intuitive interface for exploring watch brands, models, prices, and other relevant information, providing a comprehensive tool for watch enthusiasts, collectors, and industry professionals alike.

The Video Game Dilemma

David Akanbi
Faculty Mentor: Sarbani Banerjee, Computer Information Systems

Video games have been a staple in entertainment for decades, and finding out about the future of gaming would be essential in advancing the current forms of entertainment. The primary questions that will be explored in this research are: (1) Do the reasons for playing games (e.g., entertainment, challenge, social interaction) correlate with the popularity of certain genres or platforms; and (2) Can the demographic profile of video games players predict the success of future video games? To address these questions, Python language will be used through both Google Collaboratory and Jupiter Notebook to properly sort and find the data needed to select specific information. In this research, the similarities and differences between two different data sets will be explored. Multiple datasets available in Kaggle are used to investigate these questions. Utilizing advanced data analysis and visualization libraries such as Pandas, NumPy, Altair, and Matplotlib, the project will analyze the specifics of decades worth of game ratings, developer reputations, and consumer feedback. In this process, finding how genres affect the rating of a game, how many people rated the games, how the ratings from the consumers and the critics differ, and predicting the future of gaming through past events. This project aims to conduct a thorough analysis of the complex dynamics of the video game industry by looking at the relationships between user preferences, demographic traits, game attributes, industry trends, the age of the player, and their favorite games.

Social Behavior and Substrate Use of Leontopithecus rosalia Individuals

Salma Akther
Faculty Mentor: Julie Wieczkowski, Anthropology

Learning how animals allocate their time to different activities is crucial for understanding their behavioral and ecological interactions. This study investigates the activity budgets and substrate utilization of individual golden lion tamarins (Leontopithecus rosalia), focusing on two subjects: a male named Lua and a female named Matea. I hypothesized that there could be variations in the way male and female golden lion tamarins spend their time and utilize different surfaces. Using focal time sampling, I collected 21 hours of data over a span of 6 days. I switched between observing Lua and Matea every 30 minutes, with a 15-minute resting periods. The findings reveal distinct patterns between the two individuals. Notably, the female dedicated more time to feeding and moving, whereas the male engaged in social sitting and other activities. Grooming patterns also differed, with the female receiving more grooming and the male grooming more. Additionally, the female tamarin exhibited diverse interactions with other animals, including engaging, stealing, and feeding. Substrate preferences were similar for tree branches and nest boxes for both subjects, although the female used windowsills more, while the male preferred ground and rocks. These results provide valuable insights into the activity patterns and substrate choices of golden lion tamarins, enriching our understanding of their ecological interactions.

Comparative Study: Substrate Utilization and Behavioral Activity in Captive vs. Wild Brown Capuchin Monkeys

Salma Akther
Faculty Mentor: Julie Wieczkowski, Anthropology

Notable differences between wild and captive primates exist, such as wild capuchins allocating significant time to foraging and feeding, while captive populations show mixed behavioral patterns influenced by factors such as feeding schedules, enclosure size, and social dynamics. Sex differences in substrate preferences and activity budgets are observed in both captive and wild settings. This research project focuses on understanding the behavior of captive brown capuchin monkeys (Sapajus apella) compared to their wild counterparts. The goal is to understand the differences between captive and wild capuchins in substrate usage and activity patterns. I

hypothesize that captive brown capuchins primarily use tree branches and vines for resting while favoring the ground for foraging. Additionally, these captive brown capuchins are also expected to engage in less feeding and traveling and more resting, socializing, and grooming compared to their wild counterparts. The study is being conducted at the Buffalo Zoo's M&T Bank Rainforest Falls exhibit. I am observing a group of four adult brown capuchin monkeys, including two males and two females. I will collect 45 hours of observational data using group scans and ad lib samples. The study focuses on interactions with various substrates including tree branches, vines, ground, windowsill, hanging cavities, and behaviors such as feeding, foraging, grooming, socializing, and others. This study helps us understand how captivity influences animal behavior, particularly in terms of factors like feeding schedules and living space, and how these factors shape the behavior of captive primates in comparison to their wild counterparts.

Bronchitis, Pneumonia, Influenza: Age-related Mortality in Forest Lawn Cemetery, Russian Flu Pandemic (1889-1890)

Salma Akther
Faculty Mentor: Julie Wieczkowski, Anthropology

This study looks at the flu pandemic that occurred in 1889-1890 and its impact on mortality across various age groups. Surveys from Germany, Sweden, Switzerland, and the United Kingdom (England and Wales) during that outbreak consistently showed a J-shaped pattern in age-specific death. For bronchitis, pneumonia, and influenza-related deaths, the findings showed higher mortality rates among infants and individuals over 20 years old (Valtat et al., 2011). This study focuses on data from Forest Lawn Cemetery spanning December 1889 to December 1890. Using Death Register Volume D (1886-1894), a total of 93 recorded deaths were found. Among these, pneumonia was the most common cause (60), followed by bronchitis (27), influenza (5), and acute bronchitis (1). The result partially supported the hypothesis, with higher deaths in the 0-5 age group and no deaths between 5-15 age group. Moreover, fluctuations were observed between 35-65 and higher mortality in individuals over 65 years old. However, notable differences were seen in patterns that differ from the expected J-shaped curve. One reason seems to be the relatively small sample size of 93 individuals. Another factor could be the different methods, such as the prior study used mortality rates per 10,000 individuals (Valtat et al., 2011). Examining the past Russian flu helps us to understand how it affected a local community and how variation in methods and sample size can influence the research outcomes.

The Relationship Between Romantic Relationships and Emotional Well-Being

Hannah Alley, Kathryn Wilson, Mya Kompare, Molly Frothingham, Joshiatu Mansaray,
Faculty Mentor: Kimberly Kamper-DeMarco, Psychology

Romantic relationships are fundamental components of college student life experience. These can be major determinants of the emotional health for an individual and more specifically, can have a major impact on anxiety. Previous literature has focused on factors such the impact of social withdrawal on romantic involvement and relationship quality, as well as the importance of anxiety and attachment style on predicting romantic relationships. Specifically, previous work has demonstrated that anxiety decreases the likelihood of being involved in romantic relationships and different attachment styles are uniquely predictive of relationship involvement and satisfaction. The purpose of this study is to examine the role of adult attachment styles in the relationship between anxiety and romantic relationship satisfaction. The current study is designed to further clarify how adult attachment styles and anxiety levels affect romantic relationship satisfaction. We are currently collecting college student data via Qualtrics. Analyses will include descriptive statistics of all major variables and covariant as well as moderation analyses. It is hypothesized that individuals with insecure attachment styles will report having less satisfaction in their romantic relationships than individuals with secure attachment styles. It is also hypothesized that individuals with insecure attachment styles will report higher levels of anxiety regarding their romantic relationships compared to those with secure attachment styles.

Co-evolutionary Relationships Between North American and Asian Plants With North American Insects

Catherine Alverson
Faculty Mentor: Robert Warren, Biology

Insects have eaten plants for 300-350 million years. In response, plants evolve better defenses and insects evolve better attacks. In co-evolutionary interactions between plants and herbivores, participants are prompted to constantly evolve better attacks and defenses in response to the evolutionary response of the other. As a result, herbivores become more

specialized to overcome specific plant defenses so that many insect herbivores are limited to a single taxonomic group, often a single genus of plants. Approximately 65 plant genera occur in both eastern North America and Eastern Asia. Whereas these plants are closely related, and often look identical or nearly identical, they have been separated for more than 2.5 million years. Given the time and distance that these Asia and North America have been separated, I hypothesized that North American insects, having continued to evolve the ability to overcome North American plant defenses, would prefer North American plants. In this research, plants were studied in a garden filled with young plants, and in a local park with well-established plants. When looking at the results in the garden, there is some overlap in herbivory between each region of plant. However, when looking at the data from the local park, there is a clearer distinction favoring the eastern plants. This distinction in the field study points to a co-evolutionary signal between the herbivores and plants in both eastern America and Asia. Whereas the results were mixed, overall, the data shows support for the hypothesis that the native insects prefer the eastern plants with which they have coevolved.

Dune Androids Dream of Electric Spice, How Media Shaped Life in the 1980s

Nick Au
Faculty Mentor: Bridget Chesterton, History and Social Studies Education

In the 1960s, authors Frank Herbert, and Philip K. Dick published their respective works ***Dune***, and ***Do Androids Dream of Electric Sheep*** (***Bladerunner***). In the 1980s, both works were adapted into film and caused viewers to rethink philosophy and ethics with the themes present in both works, such as what life truly can be, and what happens when politics and religion mix. By researching articles, newspaper reviews, and books by contemporary viewers, this project will demonstrate the paradigm shift of the zeitgeist of the era. The contribution this research makes on this field will be a more in-depth look at two classic works that have had a resurgence in recent times, with ***Dune***: Part 1 being released into theaters in 2021, and Part 2 in 2024, and ***Bladerunner 2049*** in 2017. I argue that societal opinion can be shaped by a strong demonstration of visuals and storytelling presented in a forum of undivided attention such as a movie being shown in a theater, or a book purposely written to pass on ideas and beliefs that the author holds true. Finally, I present information on the psychological tools employed in these works that allow the writer to grab hold of the reader.

"Ah Brook, Do You Know What Love Does?" Schubert's Romantic Masterpiece *Die Schöne Mülllerin*

Alexis Rivas Ayala
Faculty Mentor: Carolyn Guzski, Music

Die Schöne Müllerin, D. 705 (1823), or The Fair Maid of the Mill, is one of Franz Schubert's (1797-1828) most beloved song cycles. Based on a series of poems by Wilhelm Müller, this ***Liederkreis*** follows the story of a cheerful miller as he wonders through the countryside, befriends a brook, and becomes smitten with a beautiful miller maid. The lovestruck miller attempts to win her over, but all is for naught as she falls in love with a dashing hunter, sending him into a depressive, jealous frenzy. The cycle ends with the miller drowning himself in the very brook that led him to the girl in the first place. With its share of dramatic turns, Die Shöne Müllerin captures a wide variety of human emotions: contemplation, infatuation, and depression. My project focuses on three Lieder which I feel encapsulate these themes best: "Wohin," "Mein," and "Der Müller und der Bach." These Lieder in particular paint beautiful pictures of the aforementioned emotions, thanks to the piano and the vocalist working together as a duo, as opposed to one accompanying the other. Schubert's work emerges as a great journey through the human psyche. The miller comes off as brash—perhaps even a bit manic—but Schubert handles his tale with such care that one can't help but relate to his woes. It's incredibly human to yearn for a connection with others and, under this mindset, the miller's eventual suicide becomes a metaphor for being hopelessly under love's spell, allowing it to overtake oneself entirely.

Born from the Sands of Brazil: Bossa Nova

Christopher Bailey-Robinson
Faculty Mentor: Tiffany Nicely, Music

My research focuses on Bossa Nova and the evolutions that it has sustained though the years. Defined by its unique characteristic rhythms, Bossa Nova was created in Rio de Janeiro in the late 1950s. As Bossa Nova developed, the genre has mingled and integrated with different genres from places like America with the inclusion of Jazz. There are many influential figures who pioneered Bossa Nova and spread it across the globe, such as Stan Getz, Joao Gilberto, Astrud Gilberto, and Sergio Mendez. The main figure I will focus on is Antônio Carlos Jobim (1927- 1994). Jobim was born in Rio de Janeiro and was already an established musician during the

genre's emergence. After the 1950s, Jobim had his Bossa Nova tunes appear on many popular albums and created his own albums later in his career. His popularity eventually led him to America, where he played at the Bossa Nova event in 1962 held at Carnegie Hall. At the end of Jobim's life, many of his songs became popular standards in Bossa Nova and Jazz music, one of these tunes being "Wave" in 1967, which is a stellar example of both Bossa Nova and Jazz influences being combined into one piece of music.

The Land of Music: Wales

Jennifer Balazadeh
Faculty Mentor: Tiffany Nicely, Music

What is needed for a country to be known as The Land of Song? For music and song exists in nearly every society on our planet, doesn't it? The country of Wales is unique in the fact that throughout its history as a rural isolated country, community singing, also referred to as "caroling," has been one of the main forms of entertainment that has united this nation over the years and led way to the now highly musical society. Today, when one thinks of Welsh music perhaps one pictures a world-class choir, or a highly skilled Penillion ensemble; but now also imagine communities joining in the wee hours of Christmas morning for plygain services, or listen for the harmonized song erupting from the stadium as fans sing during the pauses of a Rugby match, or try to enjoy the song of the farmer as he sings to his cattle leading them home. My research focused on this music of the community, these customs and celebrations that have endured since the Medieval times, allowing Welsh communities to lift their voices together as one, which is what I believe has truly allowed Wales to hold the title The Land of Song. For song is not just about entertainment for the Welsh, but also for when the times get tough; whether it is enduring long winters, working exhausting hours in the mines, or surviving in times of turmoil and torment, the Welsh turn to community singing to unite, celebrate and simply enjoy their time together.

Mindfulness and Anxiety

Cassidy Baron, Chris Blango
Faculty Mentor: Kimberly Kamper-DeMarco, Psychology

College students are particularly susceptible to anxious tendencies, with 63.4% reporting feeling completely overwhelmed by anxiety in the last 12 months through an annual survey (American College Health Association, 2018). Mindfulness is a technique in which individuals use a non-judgmental attitude to observe the present moment and accompanying sensations. Previous research supports that mindfulness practice is associated with positive psychological outcomes, including anxiety reduction. The current study aims to explore the relationship between (1) mindfulness; (2) state and trait anxiety; and (3) level of general perceived stress experienced amongst individuals. Individuals will be recruited from Buffalo State University with participants randomly assigned to spend 10 minutes either watching an informational video on the benefits of mindfulness (control), or engaging in a 10-minute guided mindfulness meditation session themselves (experimental). Prior to the video, both state and trait anxiety levels will be measured among participants, along with their perceived stress levels. After the video session, individuals will be asked to complete questionnaires on mindfulness and again on state-level anxiety. We hypothesize that mindfulness meditation will be associated with higher mindfulness scores and a decrease in state anxiety. It is also hypothesized that high stress will act as a moderator. To assess the hypotheses, a two-way ANOVA will be performed examining stress and mindfulness on anxiety. Through gaining a better understanding of varying psychological states and how they tend to be affected by coping techniques, such as mindfulness, professionals have a greater ability to implement personalized and fitting interventions for individuals in need.

AI Enhanced Autonomous Navigation: Integrating AI Processing and LiDAR in Robotics

Eric Barton, Yongjun Lee, Anthony Puelo
Faculty Mentor: Gang Hu, Computer Information Systems

This research explores autonomous robotics by integrating LiDAR, advanced imaging, and artificial intelligence (AI) for enhanced navigation and interaction in diverse environments. Our innovative approach utilizes both Light Detection and Ranging (LiDAR) sensors and a camera system to collect spatial and visual data, enabling precise obstacle detection and navigation. Central to our methodology is a sophisticated AI framework, developed from the ChatGPT-4 model, designed to process and analyze this multimodal data. By synthesizing insights from LiDAR and image inputs, the AI generates autonomous movement commands, guiding the rover with improved adaptability and awareness. The project employs the Robot Operating System (ROS) for seamless integration of hardware and software, ensuring efficient real-time decision-making and data exchange among the rover's components. This

synergy between LiDAR sensing, AI-driven image processing, and ROS architecture marks a significant advancement in autonomous robotics, demonstrating potential applications in exploration, surveillance, and environmental monitoring. Our findings contribute to the robotics field by showcasing a novel sensor fusion technique and AI-enabled navigation, setting new standards for autonomous capabilities. This research underscores the importance of integrating diverse data sources and AI in enhancing robotic autonomy, paving the way for future innovations in robotic exploration and monitoring.

Leveraging Large Language Models for Structuring and Querying Unstructured Data

Eric Barton
Faculty Mentor: Joaquin Carbonara, Mathematics/Data Science and Analytics

This research project delves into the application of Large Language Models (LLMs) to efficiently structure unstructured data and facilitate information retrieval through natural language queries. The study focuses on harnessing the power of LLMs to enhance the comprehension of web data by leveraging their contextual understanding and language processing capabilities. The project adopts a practical approach by utilizing Python and the OpenAI API to develop a Flask application. The application is designed to scrape data from the Buffalo State webpage, and using LLMs, transform the unstructured information into structured formats. This innovative approach enables the comparison of different structuring techniques, shedding light on how LLMs interpret and organize data. Key components of the research include the implementation of a systematic process that integrates the OpenAI API key to fetch data from a specified webpage URL. The data is then processed and structured in various ways to facilitate meaningful comparisons of results. The goal is to discern the nuances in how LLMs read and interpret information, providing insights into their strengths and limitations in handling diverse types of data. By employing natural language queries, the research assesses the ability of LLMs to comprehend and respond to user-generated questions based on the structured data. This methodology not only contributes to the understanding of LLMs' natural language processing capabilities but also explores the potential of these models in creating user-friendly interfaces for information retrieval. The findings from this research contribute to the growing body of knowledge on the practical applications of LLMs in structuring and querying unstructured data. The developed Flask application serves as a valuable tool for testing and evaluating LLMs in real-world scenarios, offering a foundation for future advancements in natural language understanding and data processing.

Igor Stravinsky's *The Rite of Spring* and The Art of Musical Sacrifice

Joseph Bastian
Faculty Mentor: Carolyn Guzski, Music

My project provides a focused examination of Part II of Igor Stravinsky's iconic ballet ***Le sacre du printemps*** [***The Rite of Spring***], delving into its thematic, structural, and technical dimensions. Through score analysis, my project uncovers the symbolic significance of the thematic motifs of the ballet, tracing the evolution from imagined pagan rituals of ancient Russia to sacrificial fervor. Additionally, I scrutinize Stravinsky's innovative structural framework, highlighting the use of polyrhythms and unconventional instrumentation. Furthermore, this project elucidates the technical virtuosity inherent in Stravinsky's composition, showcasing his mastery of orchestration, harmonic progression, and rhythmic innovation.

Riding on Royal Road: Exploring Japanese Music Theory through Anime

Joseph Bastian
Faculty Mentor: Tiffany Nicely, Music

This research investigates the connection between Japanese music theory and anime music, exploring how cultural heritage influences its creation. By combining insights from musicology, cultural studies, and media analysis, it examines the principles shaping anime soundtracks. Drawing from Japan's musical tradition, including pentatonic scales and rhythmic intricacies, composers craft diverse sonic narratives. Furthermore, themes from folklore and classical music blend to create anime's unique musical expression. This study also explores how audiences perceive anime music in Japan and worldwide, analyzing its impact on storytelling and emotional resonance. Through case studies of popular anime, it uncovers how music enhances the viewer experience. By understanding these dynamics, this research contributes to our appreciation of anime music's cultural significance and artistic craftsmanship.

The Mozart Myths: Fact or Fiction?

Lucas Bastos
Faculty Mentor: Carolyn Guzski, Music

Wolfgang Amadeus Mozart's ***Requiem in D minor***, K. 626 remained an unfinished work left on the composer's deathbed in 1791. Numerous fictional film adaptations were undertaken on the subject of Mozart's life and death. These are not grounded entirely in historical fact, and many film treatments perpetuate the many myths surrounding the composer's untimely demise. In ***Amadeus*** (1984), for example, the closing scenes depict a fellow composer and contemporary of Mozart's, Antonio Salieri (1750-1825), assisting Mozart in his plans for the ***Requiem***'s completion, later claiming it as his own composition. While Salieri certainly did exist, he did not have a hand in completing the ***Requiem***. Two men participated in its completion: Joseph Eybler, a colleague of Mozart's, and his pupil Franz Xaver Süssmayr. Each had a hand in completing the work, though musicologists credit the composition's finishing touches largely to Süssmayr (Eybler only orchestrated portions of the piece before backing out due to respect toward his colleague's masterwork). The circumstances of Mozart's death itself are also points of contention among historians and medical professionals: the composer himself claimed to his wife Constanze to have been poisoned, only to retract that claim upon feeling better. In this presentation, the "Confutatis" movement of the ***Requiem*** will be thoroughly analyzed; facts about Mozart's final days will be uncovered; and the true historical narrative of one of the most fascinating mysteries in music will be revealed.

Determination of Codeine Concentration of Prescription Hydrocodone/Acetaminophen Tablets

Bee Battaglia, Corinne Lapp, Bailey Hauck, Bee Battaglia
Faculty Mentor: Douglas Ridolfi, Forensic Chemistry

The popular opioid Hydrocodone/Acetaminophen is a strong prescription pain reliever. The objective of this study is to determine the purity of a prescription tablet of Hydrocodone/Acetaminophen. We will dissolve tablets containing 5 mg hydrocodone and 300 mg acetaminophen with sulfuric acid. The solution will then be extracted with chloroform using a separatory funnel. The chloroform will be evaporated and reconstituted with methanol. Using the extracted purified codeine, we will produce standard solutions of five different concentrations: 20 µg/ml, 40 µg/ml, 60 µg/ml, 80 µg/ml, and 100 µg/ml. This will allow us to create a calibration curve for the UV-Visual absorbance of codeine using Beer's Law. Finally codeine was extracted from three more tablets to produce the three trials in which we compared the calibration curve to determine the average concentration of codeine in each tablet.

Impoverished LGBTQ+ Youth: The Untold Tale

Ellen Marie Beagle
Faculty Mentor: Jessica Fitzpatrick, Social Work

When LGBTQ+ youth are poor and barely meeting survival needs, how do they find necessary mental health support and counseling in the local Buffalo area? There is considerable evidence that identifying as LGBTQ+ results in consistently poor mental health in youth due to stigma and discrimination. This trend increases with intersectionality. Nationally, troubled LGBTQ+ youth are often unable to afford care (58%), and do not want to broach the topic with their family (36%). I used peer reviewed articles from JSTOR describing the problem in the United States, plus data from a research project undertaken by the Trevor Project. I then interviewed two local agencies, Gay and Lesbian Youth Services (GLYS), and Pride Center of WNY, about local trends and available resources. The Buffalo metropolitan area follows the national trend of unsupported LGBTQ+ youth and that there are limited resources in our community. This general lack of resources increases suicides and other high-risk behaviors. There is a significant population of afflicted LGBTQ+ youth in Buffalo and there are few options to lean into for support due to status as minors and socioeconomic status. This research is to raise awareness that LGBTQ+ youth are human lives that are suffering from lack of adequate mental health care in our own backyard.

The Impact of Sleep Disorders on Effective Communication in Individuals with Parkinson's Disease

Kathryn Bean
Faculty Mentor: Anita Senthinathan, Speech-Language Pathology

Purpose: This study examines the impact that sleep disorders and disturbances have on effective communication in individuals with Parkinson's disease (PD). Previous research demonstrates sleep disturbances and communication impairments have a significant impact on the quality of life of PD patients. The purpose of this study is to understand the combined impact so that optimal treatments can be developed

in the future. Methods: The Parkinson's disease sleep scale 2 (PDSS-2) and The Voice Handicap Index (VHI) were used to assess the degree of impact of sleep and communication disturbances. This study evaluated the intensity of speech while completing 3 tasks in 3 different conditions. Participants were required to produce the following speech tasks: vowel prolongation, speech magnitude test, and a conversational speech task. Each of these 3 tasks were completed in a no noise condition, a distance condition, and a background noise condition. Results: Participants were divided into Group 1 and Group 2 (low vs high PDSS-2 scores) and the results found using ANOVA statistical analysis suggest a significant difference between groups across all speech tasks. Group 1 (low PDSS-2 scores) had significantly higher speech intensity across all tasks compared to Group 2 (high PDSS-2 scores). Conclusion: The findings from the current study suggest that effective communication for participants with higher sleep disorder scores will be more difficult than for those with lower sleep disorder scores. The results of this pilot study suggest that further examination of the impact of sleep disorder on speech and communication impact are needed.

Monster Experiment's Influence on the ASHA Code of Ethics

Winifred Benson
Faculty Mentor: Jason Grinnell, Philosophy

The "Monster Experiment," as it is known today, was conducted and advised by Wendell Johnson in 1939 to understand the origins of stuttering. Its true nature was hidden from the orphan subjects. Johnson's theory regarding the creation of true stuttering based on adverse reactions to normal speech disfluencies was ultimately unproven by the experiment. Stuttering could not be conditioned into normally fluent speakers. However, Johnson still advocated his theory's validity, impacting how speech-language pathology sessions were conducted for children who stuttered for many years. In 1952, ASHA formalized their first Code of Ethics which has numerous measures designed to ensure that another "Monster Experiment" does not happen again. A literature review of the ASHA Code of Ethics and the biomedical ethics literature leads to the conclusion that the values of beneficence, nonmaleficene, protecting autonomy, justice, and the importance of proper, fulfilling professional relationships should be upheld. The ASHA Code of Ethics implements these values into their practice and tries to ensure that they are being implemented.

Social Behaviors and Proximity in Golden Lion Tamarins and Saki Monkeys

Brigid A. S. Benson
Faculty Mentor: Julie Wieczkowski, Anthropology

Social behaviors and proximity and how they contribute to pair bonds can be quite different between different primate species, including between the golden lion tamarins and the saki monkeys. They exhibit different social interactions and behaviors that they use to maintain their bond. Leontopithecus rosalia, golden lion tamarins, show a higher level of social behaviors including social sit and rest that are important to their pair bond. Pithecia pithecia, saki monkeys, don't rely on social behaviors to the same extent. I studied two primate pairs, Leontopithecus rosalia (golden lion tamarins) and Pithecia pithecia (saki monkeys), at the Buffalo Zoo. I hypothesized that there are differences between these species regarding social behavior and proximity, with the golden lion tamarins being more social. I conducted focal samples on each member of the pair, as well as all-occurrence samples, measuring social behaviors, non-social behaviors, and proximity. I collected 24 hours of data over two weeks and found that Leontopithecus rosalia maintains a closer proximity (< two arm's length apart), as the mean proximity score is smaller than Pithecia pithecia ($p < 0.0005$). The golden lion tamarins exhibited a higher number of social behaviors than the saki monkeys, consistent with my hypothesis. In addition, the saki monkeys invested most of their social time in grooming, while the golden lion tamarins invested more time in social sit and rest, indicating there are differences not only in the frequency of any social behavior, but also in the type of social behavior that is occurring.

Walter Kempner's Rice Diet: The Dark History Behind the Popular Fad Diet

Talidy Blijden
Faculty Mentor: Bridget Chesterton, History and Social Studies Education

Fad diets are increasingly popular, as more people seek a rapid way to lose weight which requires little to no exercise. In adopting these fad diets, people often fail to contemplate their origins and the people who designed them. Walter Kempner's popular 1940s diet phenomenon, the Rice Diet, was initially a dangerous prescription, sometimes fatal. Today, there are recipe books and blogs dedicated to the Rice Diet and its

benefits. Kempner, a microbiologist from Germany, engaged in treatment methods which were unorthodox, persuading patients to stay at his "Rice Houses" (essentially three college dorm buildings at Duke University converted to an inpatient treatment center), while he drastically lowered their food and water intake to a level near starvation. During the first round of his experiment in 1939, patients only received one cup of rice, one cup of fruit, and two glasses of water per day. This research seeks to highlight his primary experiments in treating hypertension and renal failure, and how that research led to the execution of his official Rice Diet Experiment. Furthermore, the research will illustrate how the diet was effective in lower risk patients with chronic conditions, but fatal to higher risk patients- who were the patients he tested the diet on in his primary experiments. Patients who died during his treatment are referenced in his published research only twice.

Literacy and Poverty In Buffalo

Maximilian Blum
Faculty Mentor: Jessica Fitzpatrick, Social Work

Buffalo has experienced many issues with its education system but one of the most resounding issues is literacy levels and the impact it has on so many parts of people's lives including an increased chance of being incarcerated and impoverished. In the Buffalo Niagara area 17.5% read below a Level 1 reading level and only 46% are considered proficient in reading. In the United States, 99% of Americans are considered literate, which means they have the most basic reading level. However, 21% of Americans are also considered functionally illiterate, meaning they are at or below the basic level of reading. Multiple sources track literacy in the United States the most prominent among them is the National Center for Educational Studies which analyzes global education standards and trends. Illiteracy impacts certain groups harder than others, in African American communities' literacy levels are lower, implying a racial bias in education systems. Expected findings could include how literacy can impact people in many ways including finding employment, incarnation rates, issues maneuvering health services and other factors that contribute to people ending up in poverty. In Western New York there is a foundation called Literacy Buffalo Niagara which focuses on the region and attempts to correct this issue with adult education volunteers. The poster intends to uncover literacy as one of the underlying themes of social inequity, disenfranchising so many and expediting poverty and injustice.

The Relationship Between Parenting Styles and Career Decision Making

Victoria A. Bolden
Faculty Mentor: Jill M. Norvilitis, Psychology

Career decision-making skills are imperative for young adults, so they can choose the right career in adulthood. The various influences that different parenting styles can have on a child have been acknowledged, including on career decision-making. Past research highlights that stricter parenting styles are associated with lower self-efficacy and higher indecisiveness regarding career decision making. Additionally, parenting styles are associated with varying levels of locus of control in adolescents. While there is some association between career decision-making and parenting styles, research has not accounted for helicopter parenting. This study focuses on expanding on the previous research regarding parenting styles and career decision-making skills by including the helicopter parenting style and examining factors from parenting styles that influence career decision-making in college students. The study sample included 120 college students studying Psychology at Buffalo State University. We explore students' perceived parenting styles (authoritarian, authoritative, permissive, helicopter) and how they relate to career confidence, locus of control, self-efficacy, and career indecisiveness through a survey. Results indicate a correlation between indecisiveness and behavioral control and psychological control factors in helicopter parenting, but not with typical helicopter parenting. Students that perceive parents to be psychologically and behaviorally controlling report increased career indecisiveness. Implications may suggest that, similarly to the three main parenting styles, the helicopter parenting style itself may not be problematic but may contain certain aspects that may influence parents' career decision-making in their children.

The Kensington Expressway: Segregation in Buffalo

Joseph Book
Faculty Mentor: Jessica Fitzpatrick, Social Work

My research question is: What does poverty and residential segregation look like in Buffalo? Ideas such as redlining and white flight have continued to keep people of color behind and in poor communities. Big cities around the United States still continue to have increased amounts of segregation. Low-income African Americans live in neighborhoods with a poverty rate of around 40 %. In order to learn about the issues

of residential segregation in Buffalo, I took pictures on both sides of the Kensington Expressway to show the effects of redlining. I also have reviewed local websites and organizations to further help support my claims and images. I expect the results to show that the building of the Kensington Expressway has caused an increased amount of residential segregation and poverty. In comparison to the rest of the United States, I expect the data to be similar to other big cities. There are plenty of groups in the community who are currently against the Kensington Expressway and hope to eliminate it. My hope with my project is to continue conversations about the effects of the Kensington Expressway and how the construction of it has created a gap between the two sides of the expressway.

Associations Between Child Executive Function and Parental Stress

Jennifer Mitsuyama Brandenberger
Faculty Mentor: Kimberly Kamper-DeMarco, Psychology

Lower child executive function is correlated to higher parent stress when executive function is measured by parent report (Wagner et al., 2016). Parents who have children with ADHD and autism report higher levels of parenting stress, however, the results implied that the parenting stress was correlated specifically with the behavioral difficulties stemming from the disorders (Hutchinson et al., 2016). This is further supported by findings that hyperactivity was a higher predictor of parent stress than severity of autism and child quality of life in an autistic child population (McStay et al., 2014). What is missing from the current literature is an examination of the relationship between executive function in preschool aged children and parenting stress in a neurotypical population. The current study examined how child executive function across different domains (Parent-reported through the BRIEF-P, results from tasks) relate to parenting stress. It was hypothesized that child executive function will be negatively correlated to parenting stress on both domains. Parents were given the Parent Stress Index (PSI) and the Behavior Rating Inventory of Executive Function- Preschool Version (BRIEF-P) to measure parenting stress and parent-reported child executive function respectively. Children went through an interview where they engaged in the Head-Toes-Knees-Shoulders (HTKS) task to measure child executive function. Results found parent stress was associated with lower parent-reported executive function but not associated with measured child executive function.

Physiological Stress Throughout the Semester and Energy Intake

Maya Broniszewski
Faculty Mentor: Naomi McKay, Psychology

Students tend to experience a variety of stressors throughout the semester such as extracurricular activities and academic stressors. Studies have shown significant increases in self-reported stress among students towards the end of the semester, however, physiological measures of stress are unknown. Cortisol is a critical measure of chronic stress that is often overlooked in the literature but needs to be measured to get a better idea of if stress is only emotional or is also affecting participants' physiology. The proposed project measured several physiological aspects of stress, including salivary cortisol and blood pressure. It is hypothesized that there is a correlation between academic stressors and higher levels of anxiety and cortisol in students. Students participating in this study visited the lab during Week 3 of the Fall 2023 semester to fill out measures of stress. To measure physiological stress, participants provided a fasting saliva sample to be analyzed for salivary cortisol levels and heart rate and blood pressure were taken. In addition, students were asked about their academic stressors and self-rated anxiety was measured. It is expected that there will be a positive correlation between academic stress and physiological measures of stress. This study will provide data on physiological measures of stress, which are often overlooked in literature but critical to measuring stress levels.

Does Emotional or Physical Stress Predictably Change over the Semester?

Maya Broniszewski, Lillyan Kingsbury
Faculty Mentor: Naomi McKay, Psychology

Students tend to experience a variety of stressors throughout the semester such as extracurricular activities and academic stressors. When first-year students' stress is monitored over the semester, significant increases in self-reported stress among students towards the end of the semester are found, however, physiological measures of stress are unknown. The current study will be examining the change in physiological stress markers at three time points, the start and end of the Fall 2023 semester and the beginning of the Spring 2024 semester. The hypothesis of the current study is that students experience a higher level of physiological and emotional stress during the end of the semester, compared to

the beginning. Students participating in this study had already visited the lab twice during Week 3 and Week 14 of the Fall 2023 semester and came back once again during Week 3 of the Spring 2024 semester. To measure physiological stress, participants provided a saliva sample to measure salivary cortisol levels. Heart rate and blood pressure were also taken as a measure of stress. Then a questionnaire was given to measure self-reported anxiety. It is expected that students will experience higher levels of physiological stress at the end of the semester, compared to the beginning. Cortisol is a critical measure of chronic stress that is often overlooked in the literature but needs to be measured to get a better idea of whether stress is only emotional or is also affecting participants' physiology.

Sleep and Impulsivity

Maya Broniszewski
Faculty Mentor: Naomi McKay, Psychology

Impulsive behavior is broadly defined and is presented in many different ways, including temporary, or state-level impulsive behavior, and more stable, or trait-level impulsive behavior. Previous studies have shown positive correlations between stress and trait-level impulsivity, however, there is a lack of research that focuses on state-level impulsivity and stress. Stress and sleep deprivation are commonly connected, however, it is unknown whether there is an interaction between sleep, impulsivity, and stress. The primary hypothesis of the current study is that state-level impulsivity is negatively associated with quality of sleep. The secondary hypothesis is that the correlation between sleep and impulsivity will be higher in participants who report higher chronic stress. Participants were female undergraduate students from Buffalo State University. As part of a larger study, participants completed questionnaires measuring previous nights sleep quality, state impulsivity, and chronic stress. Three aspects of sleep were measured: participants's sleep quality compared to their average night; number of hours slept the previous night; and how long it took for them to fall asleep. Participants rated their impulsive behaviors in the past hour in order to measure state-impulsivity. It is expected that lower sleep quality, specifically when examining sleep quality compared to other nights, and total hours of sleep, will be negatively associated with higher state-level impulsivity and that this relationship will be stronger in participants who have high chronic stress.

Constructing the Enemy: How US Media Framed the USSR in the 1980s

Tyler Buchanan
Faculty Mentor: Bridget Chesterton, History and Social Studies Education

This study examines the presentation of media in the United States on American citizens, through an analysis of the use of news reports, newspapers, advertisements, and movies. Ultimately, the media in the United States from the 1980s reveal a clear and apparent message the US media portrays the USSR to instill fear into the average American citizen. The 1980s was a hotbed for the ideological and political rivalry between the United States and the USSR during the Cold War. The United States sought to promote democracy and capitalism, while the Soviets and the Eastern Bloc promoted communism. This project expands a niche field that many Americans know and feel today but has been previously neglected by historians. This field was neglected because the 1980s is still in recent years and historians are just starting to look back and see it has historical context. Furthermore, while some may perceive this thesis as redundant due to the ongoing relevance of public perceptions of the Soviet Union during that era, it is precisely this enduring significance that underscores the necessity of a nuanced historical examination.

Age of Infant Mortality Before and After Infant Mortality Prevention

Emily Cendrowski
Faculty Mentor: Julie Wieczkowski, Anthropology

In 1909, the American Association for Study and Prevention of Infant Mortality was created as an initiative to provide an increase in hygienic and nutritional practices to limit infant mortality (Brosco, 1999). As a result, I hypothesized that more infants would have a greater life span in 1919 than in 1899. To conduct the study, fifty infants were studied in the year 1899 and another group of fifty were studied from 1919, with data sourced from the Death Registers of Forest Lawn Cemetery in Buffalo, New York. All infants were selected in alphabetical order of last name, recording the name and age of infants who had died prior to reaching one year old until all fifty infants per year studied were recorded. In 1899, 34% of the infants sampled in that year had died before one month of life. In the following months, infant deaths had decreased, with less than six infant deaths occurring in each month. In 1919, 36 infants had died before reaching their first month of life, with 18 being stillborn and excluded from data analysis. The remaining

infants who had died before one month old represent 56% of the infants. In the months after, less than five infants had died at each month of age. My hypothesis was not supported since there were more deaths occurring at a younger age in 1919 than in 1899. Causes such as infant deaths being unrelated to poor hygienic practices and infant mortality prevention could have contributed to the results.

What Does Poverty and the Crime Rate Look Like in Buffalo?

Rayven Chaires
Faculty Mentor: Jessica Fitzpatrick, Social Work

My research question is: What does poverty and the crime rate look like in Buffalo communities? The crime rate is part of Buffalo as well as New York State, and the Buffalo TOPS shooting in June 2022 was the deadliest United States mass shooting of the year. Unfortunately, it was not the only shooting in Buffalo nor New York State. To learn what poverty and crime rate look like in Buffalo, I took a poll of five Buffalo citizens to better understand whether the crime rate is perceived as greater in poor or wealthy communities in Buffalo.

The Effect of Placentophagia on Morphine-induced Respiratory Depression in Rats

Ivy Chen, Megan Ang
Faculty Mentor: Jean DiPirro, Psychology

Previous research shows that placentophagia, the ingestion of afterbirth, enhances some opioid-induced effects (e.g., opioid-induced analgesia), but inhibits or has no effect on others (e.g., opioid-induced constipation and hyperthermia, respectively). The current study extends this line of research to determine if placentophagia affects opioid-induced respiratory depression. In our study, 12 rats were fed placenta or a control substance in combination with one of 3 doses of morphine (0, 3, or 10 mg/kg, IP), and the effect of these combinations on respiratory rate and pulse oximetry was measured. A 2 X 3 mixed factorial design with repeated measured on the morphine-dose variable will be used. We hypothesized, based on past psychopharmacology research in our laboratory (DiPirro & Kristal, 2004), that placenta ingestion would have no effect or inhibit morphine-induced respiratory depression. Opioid-induced respiratory depression is the leading cause of overdose death from the recreational or medicinal use of opioids. A better understanding of the curious phenomenon of opioid-activity regulation by placentophagia may provide new strategies for the treatment of opioid-induced overdose and/or analgesia.

Differences in Causes of Death Between Males and Females

Ivy Chen
Faculty Mentor: Julie Wieczkowski, Anthropology

Males and females have been shown to die from different causes, which can be attributed to age, lifestyle habits, and biological factors. I hypothesize that males will have different causes of death from age 20 or above compared to females. In Forest Lawn Cemetery in Buffalo, New York, I recorded information from 100 adult individuals (50 males and 50 females) who died in 1888 from natural causes, using Volume D 1886-1894 at the Margaret L. Wendt Archive and Resource Center. Data collection was based on age at death of above 20, cause of death, and sex determined by first names. The categories for the causes of death for each sex are different from those for the other sex. Males and females have different causes of death with infectious disease being more prevalent in females at 80% whereas males with only 66%. In particular, the males showed a higher proportion of deaths due to the kidney (16%) compared to females. Males also have a difference in death in the kidney/heart (4%), liver (2%), muscle (6%), and heart (6%). Females have a more equal distribution of diverse deaths due to the brain (4%), heart (4%), kidney/heart (4%), and other deaths (8%). These findings support the hypothesis that males and females have different causes of death in the specified age range and year which may contribute to our knowledge of the recurrent trend of females living longer than males.

Flamenco: The Song, the Dance, the Music

Anthony Choops
Faculty Mentor: Tiffany Nicely, Music

Flamenco is an art form originating from the Andalusian region of Spain. It is characterized by its powerful music, intricate dance, and rhythmic guitar accompaniment. Rooted in centuries of history, flamenco embodies the essence of Spanish culture, capturing the emotions, struggles, and triumphs of its people through its evocative melodies and mesmerizing rhythms. The traditional flamenco ensemble consists of three primary elements: ***cante*** (song), ***baile*** (dance), and ***toque***

(guitar). Each component contributes uniquely to the rich tapestry of flamenco. At the heart of flamenco lies its music, which serves as the foundation for the entire art form. The music of flamenco is characterized by its intense emotions, often ranging from profound sorrow to unbridled joy. The ***cante*** is arguably the most integral aspect of flamenco music. Sung with raw emotion and intensity, flamenco lyrics deal in themes of love, loss, and longing. The passionate vocals, often accompanied by handclaps and shouts of encouragement, draw listeners into a world of emotion and passion. Equally essential to flamenco is the art of dance. Flamenco ***baile*** is a dynamic and expressive form of movement that amplifies the emotional intensity of the music. Dancers, known as ***bailaores*** and ***bailaoras***, interpret the music through intricate footwork, graceful arm movements, and dramatic gestures, conveying a range of emotions with every step. Central to the musical ensemble is the flamenco guitar, or ***toque***. The guitar serves as both accompaniment and solo instrument, providing a rhythmic foundation while also expressing melodic intricacies and improvisations. With its distinctive sound characterized by rapid strumming known as ***rasgueado***, intricate fingerpicking, and flourishing melodies, the flamenco guitar adds depth and complexity to the music, enhancing its emotional impact. My research aims to explore the influences of Romani and Moorish music and culture in the development of Flamenco, and how singing, dancing, and music (specifically guitar music) are inseparable aspects that make up the art form.

Urban/Public Education in the 1980s Affected Low Income Homes

Candace Christian

Faculty Mentor: Bridget Chesterton, History and Social Studies Education

This research project analyzes the trends indicating a growing need for increased attention to the educational system in New York City during the 1980s and 1990s. The lack of concern for proper educational growth in urban/public education had consequences, as well as lost opportunities for academic development and socio-economic challenges for children between 1980 and 1990. Understanding the impact of the lack of concern for proper educational growth in urban/public education continues to be a primary concern for educators, researchers, and advocates for advancing equality in education. Journal articles and news articles written between 1979 and 1990 are sources used to substantiate the levels of concerns and perspectives that this research examines. These sources contribute to the body of knowledge by analyzing each statistic, data, and study collected through detailed, systematic research. The 1980s was a time for significant school reforms. Through this research, the word "Urban" is seen as a euphemism for communities of color. Historically, major policies before the 1980s significantly shaped education, which led to massive changes and reforms in the 1980s. During this period, educators were faced with many new difficulties, including, but not limited to, debates around school curricula, discipline problems, and outside factors, including drugs and poverty in communities.

The Use of Sign Language in Teacher Preparation Programs in Lusaka, Zambia and Buffalo, USA

Hailee Cipollina

Faculty Mentor: Keli Garas-York, Elementary Education, Literacy, and Educational Leadership

This project is grounded in my experiences visiting a teacher preparation program in Lusaka, Zambia, as well as my experiences as a teacher candidate. I will synthesize peer reviewed articles and online teacher education requirements to connect to my experiences. I will conduct a literature review on the value of sign language in two teacher preparation programs in different countries. Examples from my personal experiences will be included to provide a context for this research.

Andean Music: The Singing of Panpipes

Gabriella Colton

Faculty Mentor: Tiffany Nicely, Music

My research centers around the question of how and why music is an important part of culture throughout the Andes Mountains region. Since ancient times this music has been used for events such as harvest times and festivals. Different seasons brought about changes in instruments used as well. Much of this music was learned through oral tradition and different regions of the Andes Mountains had their own embellishments to phrase types, scales, and textures. The main instruments used in this type of music were winds, drums, and various idiophones (struck percussive instruments). One instrument that is a staple of Andean music is the panpipe, also referred to as the siku or antàra. This is an aerophone that comes in various shapes and sizes. It plays main melody parts and has a breathy tone as the air swirls and vibrates through the various pieces of cane. Different sizes of cane determine the pitch at which a note is being played. Panpipes

have become major artifacts and have helped archeologist learn about the history of the music even though there was not strong documentation. The Andean music we hear today does vary from that of the indigenous people's before because of the Spanish conquest. The Spanish brought in various string instruments, like guitars and similar types of chordophones, and the natives to the Andes Mountains made these a part of their music. Instruments such as panpipes remained and to this day are used in this music culture.

Water Poverty in Buffalo

Wahsontiio Conners
Faculty Mentor: Jessica Fitzpatrick, Social Work

My research question is: What does poverty and water safety look like in Buffalo? The bottom of the River is contaminated with polychlorinated biphenyls, polynuclear aromatic hydrocarbons, and metals. Water health is essential to all living peoples as well as animals. In order to learn about water safety in Buffalo I interviewed 10 people. I also reviewed local website sources, data, and statistics. I expect to find that plenty of people in Erie county, particularly poor people living in the City of Buffalo or on nearby Native Reservations, do not have a safe water supply for their household to drink, cook with, and bathe in. Due to the chemicals in the water, this could cause significant health problems. There are plenty of resources in the community that are linked to water safety. I hope my poster demonstrates that there is a problem with water safety in Buffalo.

COSMOS IV

Dante Cracchiola, Sang Chin, Colin Pfeifer, Jiannan Wu
Faculty Mentor: Ilya Y. Grinberg, Engineering Technology

The COSMOS project, an acronym for Computer On-board Scientific Mobile Observatory System, represents an advanced robotic system designed to enhance scientific exploration and discovery. It is developed with the future aim of competing in the University Rover Challenge (URC) on behalf of SUNY Buffalo State University. This project is a testament to the power of collaborative efforts, involving yearly contributions from various student groups to improve and refine its capabilities. Spanning multiple disciplines, COSMOS integrates aspects of motor control, software development, sensor networks, and the integration of electronic and mechanical hardware. Presently, the focus is on refining several subsystems, including Closed Loop Control programming, Hand controller, printed circuit board (PCB) design, and power rail boards, ensuring all components are optimized for performance.

The Sounds of Jewish Life

Adam Cramer
Faculty Mentor: Carolyn Guzski, Music

The music of the synagogue and of the Jewish people is very important to their culture. Ernest Bloch (1880-1959), a composer born to two Jewish parents in Geneva, found his spirituality and ethnic-national beliefs in the Jewish tradition while studying composition in Germany from 1899 until 1903. He began to incorporate his spirituality into his music using ***shtaygerim***, the traditional scales of Hebrew music. I explore the three main ***shtaygerim*** that are used, which all give traditional Hebrew music a distinctive sound. These include ***ahava raba*** (great love), ***mi sheberach*** (the one who blesses), and ***adonoy moloch*** (God king). All of the ***shtaygerim*** would be heard in just about every blessing and song in a Jewish temple or home. I also will look at how Ernest Bloch used these modes to great effect in much of his music in combination with standard Western European music theory, giving it a very interesting and distinct sound. I will focus on his composition ***From Jewish Life***, written around 1924 for solo cello and piano, where it is particularly apparent. My analysis will show how Bloch's desire through the three-movement piece to "capture the complex, ardent Jewish spirit and soul" shines with his use of the ***shtaygerim***, while retaining a mix of the Western European music theory that he learned in Germany and through his experiences as a classical musician, creating a combination that is unique in its own way.

From War to Film Score: The History of Taiko Drumming

Lucas Diermyer
Faculty Mentor: Tiffany Nicely, Music

This research project focuses on Japanese Taiko drums and their history. Taiko are very large drums that range from 18 to 24 inches in diameter and played by striking them with stickers or ***Bachi***. They had many different uses and appearances throughout Japan and other countries around the world. They were originally played to ward off pests and during battles to keep the troops engaged. The word "Taiko" in Japanese simply means drum, as these types of drums were the most common there. Even village boundaries were set based on how far the

sound of these instruments reached. A drum would be placed in the center of the village and struck continuously and when the drum could no longer be heard that was the border. Later they were played as simply timekeeping instruments at events such as ***Gagaku***. Larger ensembles of Taiko players emerged during the 1950's in Japan and a decade later in the United States. These groups have a varying size for performances sometimes performing with as few as two people or a whole stage of players. These performances sometimes include melodic instruments such as flutes. but often are performed with no melodic instruments. The instrumentation sometimes consists of other Japanese or non-Japanese percussion instruments. This rich history ultimately led to the Taiko becoming a staple of Japanese culture and making its way into pop culture such as film scores throughout the world. My research traces how this took place.

Poverty in Single Mothers in Buffalo

Makka Djibrine
Faculty Mentor: Jessica Fitzpatrick, Social Work

My research question is: What does poverty for a single mother look like in Buffalo? In order to learn about the single mothers in Buffalo, I conducted an interview with my mom about her experiences as a single mother raising eight kids by herself. I've learned that she's a hero. I reviewed journal articles as well as local reports that examine challenges faced by U.S. single mothers in achieving economic self-sufficiency, emphasizing disproportionate poverty rates. For instance, it advocates for comprehensive policy changes and draws on studies by Valerie Polakow and Michael Dyson, while a Smart Asset study highlights economic difficulties in Atlanta compared to cities like San Jose and Seattle. I expect to find that, like the rest of the U.S., many single mothers in Buffalo face a range of obstacles and crises, including financial instability, a lack of affordable childcare, limited access to education, and inadequate support systems. These challenges can create significant barriers to their ability to provide for their children and achieve economic stability. There are plenty of resources in the community that will help single mothers who are in poverty. It is my hope that my poster will raise community awareness and inspire people to come forward and take action to support single mothers in our community.

Gun Violence in Black Communities: Why Do We Keep Killing Each Other?

Jaylen Edwards
Faculty Mentor: Jessica Fitzpatrick, Social Work

In America, black Americans are ten times more likely than white Americans to die by gun homicide. Some people blame this on gun laws, but in order to understand gun violence we must look at the inequalities that black Americans face. Some of those inequalities are poverty, access to education, and access to resources. New research shows that gun violence impacts young people living in low-income counties in New York state more than any other population, and that the risk of dying from gun violence rises as the poverty in those communities increases. In Buffalo, 28.3 percent of residents live below the poverty line, the 7th highest city percentage nationwide in 2021. These inequalities experienced today can be traced back to historical oppression that black Americans went through. In order to truly solve the issue of gun violence, we have to address the inequalities that black Americans experience. I polled students at Buffalo State and asked them if they or someone they are close to (family or friend) have been affected by gun violence, and the majority of them responded yes. In Buffalo, there are several resources available to help with the issue of gun violence: Erie County Gun Violence Prevention Program, MVP of Buffalo Anti-Gun Violence Community Action Plan, and Buffalo Weed and Seed Initiative are just a few. In this research, you can expect me to analyze the inequalities and highlight the improvements that must be made in order for black Americans to not have to struggle in order to survive. Through my research poster, I hope to help people better understand the issue of gun violence as it relates to impoverished black communities, why it is happening, and what resources are available to help combat the issue.

Stephen Burrows: Pioneering Innovations and Influence in the Disco Era Fashion Scene

Kayeelah Ephraim, Anthony Rick, Jaiden Allen
Faculty Mentor: Arlesa Shephard, Fashion and Textile Technology

Stephen Burrows made a significant impact on the fashion industry, particularly during the disco era, with his innovative designs that elevated the fashion world. Rising from the Garment Center to international fame, Burrows became an icon known for his vibrant and groundbreaking creations. His use of jersey knit fabrics and unique designs made his

dresses comfortable and popular for the dance parties of the 70s. Through effective research methods like the SIFT method, Burrows' career trajectory and contributions have been analyzed, highlighting his lasting impact and legacy in fashion history. The Battle of Versailles was a pivotal moment, where Burrows showcased his distinctive designs, including his lettuce hem finish and bright knit jerseys, alongside African American models, breaking boundaries in the industry. Burrows' influence on the disco era brought vibrant color blocking, thinner fabrics, and unique stitching techniques, earning him high praise. He paved the way for future black creatives to be original and authentic in the fashion industry, inspiring a new generation of designers.

Connexin Mutants Associated with Skin Disease

Oghenetega Eruotor
Faculty Mentor: I. Martha Skerrett, Biology

The hereditary skin disease erythrokeratodermia variabilis (EKV) is characterized by transient patches of red, thickened skin. This disease is caused by mutations in genes critical for skin function, including mutations in the gene that codes for a gap junction protein known as Cx30.3. This research is focused on better understanding the molecular changes that take place because of these mutations, with focus on two missense mutations that cause amino acid substitutions in the Cx30.3 protein. The first mutation of interest is S26Y which results in tyrosine replacing serine at position 26. The second mutation of interest in M190L which results in leucine replacing methionine at position 190. Bioinformatics was used to review the location and properties of altered amino acids. Since Cx30.3 is known to form gap junctions, the Xenopus oocyte expression system is being used to study gap junctions and associated hemichannels that are formed by Cx30.3 and the mutant proteins.

Low Retention Rates: Factors on Why Students Drop Out

Jamie Ervolina, Michael Weyant, Ace Gardner, Sam Palya
Faculty Mentor: Eyad J. Naseralla, Psychology

This study will analyze various factors on why students drop out of Buffalo State University. As the retention rate of the University has decreased in recent years, we examine elements revolving around social, academic, and personal factors. The study will be conducted fully online through a questionnaire. There will be questions assessing students' social factors, such as extracurricular activities, social support, and friendship attitudes as socializing leads to many positive outcomes for student's overall well-being. Other questions assess academic elements, such as attitudes toward other students and faculty. Personal factors are also included through the measuring of life satisfaction along with one's motivation to succeed, as both of these attitudes play roles in why students do not complete college. Afterwards, students will complete a scale that measures their intentions of dropping out. This study will seek to find the answer to high dropout rates and help the school form policies in order to improve student retention and success.

Expression and Characterization of Erythrokeratodermia variabilis (EKV) Mutants Connexin30.3 G12D and R22H

Zahraa Faisal
Faculty Mentor: I. Martha Skerrett, Biology

Gap junctions allow direct intercellular communication in animals. Each gap junction channel is assembled from a docking interaction between two connexon channels in adjacent cells. The connexon channels are composed of six connexins arranged around an aqueous pore that allows movement of electrical current, ions and metabolites. Connexin30.3 is one of many gap junction proteins that mediate intercellular communication in skin and the significance of connexins in human epithelial tissue is emphasized by skin disorders that result from their alteration. The expression of Cx30.3 is restricted to the stratum granulosum and mutations in the gene encoding Cx30.3 (GJB4) such as G12D and R22H cause erythrokeratodermia variabilis (EKV). In this project we used site-directed mutagenesis to create EKV mutations in Cx30.3. We then expressed the mutants in Xenopus oocytes and compared their function to that of wildtype Cx30.3. Expression of the mutants G12D and R22H did not appear to alter oocyte health however the mutants increased the conductance of the oocyte membranes. The study is ongoing and using dual cell voltage clamp methods we plan to determine if the mutants are able to form gap junction channels.

Understanding HVAC System Design and Sciences through Competition

Rider Farnsworth, Jeff Fleckenstein, Dennis McGannon, Toby Bouthsavong
Faculty Mentor: Jikai Du, Engineering Technology

The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) has launched a competition challenging students to design an energy-efficient HVAC system. For this competition, we will explore the HVAC design calculations category. This tasks us with analyzing the heating and cooling loads due to environmental and occupancy variables on what will become a new public library in São Paulo, Brazil. The objective is to provide correctly sized heating, ventilation and air conditioning systems for the building. Our team benefits from access to comprehensive weather data, existing architectural drawings, industry standards, and Mentorship from a local engineer affiliated with Wendel Companies, a prominent architectural firm. We are preparing to utilize Carrier's Hourly Analysis Program (HAP) software for calculations and energy simulations. Solidworks CAD software will be used to visualize the building and produce technical drawings. Initial evaluations of the prevailing exterior wall composition indicates an insulation resistance in agreement with ASHRAE energy standards. Further analyses of the remaining structure is in progress, and optimization of insulating material thickness may be considered. Our team aims to integrate final load calculations into an HVAC system design that is not only energy-efficient and cost-effective but also in harmony with the surrounding architecture.

AI in the Art Room

Janinna Farragher
Faculty Mentor: Keli Garas-York, Elementary Education, Literacy, and Educational Leadership

Artificial Intelligence (AI) may be the most exciting and terrifying tool artists have ever seen. Artists and educators alike are unsure of how AI will affect their classrooms now and in the future. My research will be based on a synthesis of research to investigate perspectives on how artificial intelligence impacts, neglects and evolves art classroom practices and pedagogy. The goal of this synthesis is to identify the pre-existing conflicts that AI unveils in the art community and analyze how they can change an art classroom's dynamic. I hope to find tools and solutions for educators to be able to utilize the strengths of AI in their classes, while also understanding and learning from AI's weaknesses and incomparable qualities to that of a human.

The Development of a Questionnaire to Evaluate the Child Advocacy Studies Program at Buffalo State

Angie Felix-Abril
Faculty Mentor: Pamela Schuetze-Pizarro, Psychology

Child Advocacy Studies is a certificate program that began in 2023 and has been rapidly growing since its inception. To date, we have not tracked student perceptions of the quality and usefulness of the program. Online questionnaires are an essential method of data collection thanks to their versatility and non-intrusive nature. The main objective of this poster is to describe the development of a program evaluation questionnaire for the Child Advocacy Studies certificate program. The ultimate goal of this questionnaire is to understand the strengths and weaknesses of the program so that feedback can be used to increase the effectiveness of Child Advocacy Studies at Buffalo State. Qualtrics provides a robust platform for questionnaire design. Leveraging the capabilities of Qualtrics, I will describe the questionnaire that was developed and will share some preliminary findings from the survey which was deployed in all CAS courses during the Fall 2023 semester.

Zelda Wynn Valdes: Recognizing the Fit Queen

Lisa Fields, Ashbiya Giri, Bailey Morawiski
Faculty Mentor: Arlesa Shephard, Fashion and Textile Technology

Our project aims to highlight the remarkable contributions made to the fashion industry by Zelda Wynn Valdes, particularly during a time when race and gender played a significant role in receiving the recognition that one deserved. The purpose of our project is to shed more light on the challenges she faced and the exceptional work she accomplished for the industry. Methods that were used consisted of scholarly documents about her history and upbringing in the fashion world, along with a well-published podcast. Zelda, known as the "fit queen," empowered women with curvier structures to embrace their femininity by creating dresses that fit their bodies, rather than forcing them to fit into a mass-produced dress. She was a designer with pure talent who could make a dress that fit any body size. She designed for "curvy" models who made it onto magazine covers in the mid 20th century, she broke down barriers in the fashion world by promoting diversity and femininity through her designs. Moreover, she designed the original infamous Playboy bunny

suit and was the first Black woman to own a boutique on Broadway in Manhattan in 1948. Through our research, we discovered that instead of focusing on the design, the backstory matters. While learning and understanding the background of Zelda Wynn Valdes it was good to look at it from a view of equality, where she proved that people, especially women of color can do anything.

Poverty in the Black Community

Basosila Francoise
Faculty Mentor: Jessica Fitzpartick, Social Work

My research question is: What is the impact of poverty on mental health in the black community in Buffalo? Through a review of journal articles, I have found that poverty disproportionately affects black communities in Buffalo and contributes to mental health problems. After doing my research I collected local data on poverty and mental health in Buffalo, specifically focusing on the experiences of black communities. Additionally, I conducted interviews with individuals from these communities to gain a deeper understanding of their lived experiences. The photographs I took in both black and white neighborhoods highlight the stark disparities in living conditions and resources. Local statistics and information reveal the urgent need for attention and action to address poverty and mental health in the black community in Buffalo. The research demonstrates the significant impact of poverty on mental health in the black communities in Buffalo. It also highlights the lack of sufficient measures in place to address these issues. This project aims to raise awareness about the intersection of poverty and mental health, particularly within black communities. By engaging the community in discussion, I hope that I can foster a greater understanding of these issues and inspire action towards a positive change.

The Sound of the Uilleann Bagpipes

Rainna Frombgen
Faculty Mentor: Tiffany Nicely, Music

The objective of this research project is to demonstrate how the uilleann (“elbow”) bagpipes produce sound. This instrument was used in traditional Irish music and began to emerge during the early eighteenth century. These instruments consist of several components, and these include the chanter, drone pipes, regulators, bag, and bellow. These parts work together to create the instrument’s sound. To play the instrument one places the bellow underneath their right arm while using their left arm to control the bag. The bellow is what supplies the air to the bag. As the bag fills, the musician squeezes it and the air is released into the chanter, regulators, and drone pipes. The chanter and regulators have double reeds, and the drone pipes have beating reeds. The air that is pushed into these parts of the instrument causes the reeds to vibrate, and this is what creates the sound. Each of these parts play a different role. The chanter creates the melody while the keys of the regulators can add harmony. Whereas the drone pipes produce an accompaniment with pitches that remain constant. Through my research, I have discovered that the uilleann bagpipes are a very complex instrument that utilizes several components such as, but not limited to, the drones and chanter to create its unique sound.

CLO3D and 3D Fashion Design: The Future of Fashion in the Digital Age

Jacob Frothingham
Faculty Mentor: Mamta Saharan, Fashion and Textile Technology

Pattern making and sample sewing have always been one of the most time and resource consuming parts of the fashion industry. One of the first steps in creating a garment is drafting a pattern, or the blueprint of the piece. Originally made using pattern paper, a pencil and a ruler, these patterns were very time consuming and required a great deal of skill and precision. After a pattern is made, the garment cannot go right into production, rather a sample must be sewn to test if the pattern meets expectations. Typically, multiple patterns and samples must be made before an item is ready for production. New technology has been developed to make this process more efficient and faster. Clo3d is a pattern making and 3d rendering software that allows fashion designers to make patterns on a computer. These patterns can be tweaked and made to be exact up to a hundredth of an inch. These patterns can then be draped onto an avatar and simulated in real time to see how they fit and interact with each other. The purpose of my project was to learn more about Clo3d and create three design looks that will be presented in my poster. In the future, I will be using the patterns I created to bring the looks into production and use them in the real world.

Water Sampling Analysis of Scajaquada Creek and Adjacent Wetland, Fall 2023

Katie Furtney
Faculty Mentor: Stephen Vermette & Mary Perrelli, Geosciences

The sampling of Scajaquada Creek and the adjacent wetland (both located in Buffalo, NY) was to evaluate the impact of a storm event on the water quality of the creek and how the wetland might impact the creek's water quality downstream. A combined sewer system (sanitary and storm) discharges into Scajaquada Creek after rain events greater than half an inch. The wetland was constructed to take-up creek floodwaters and given its groundwater source, to add "cleaner" source water to the creek. Water quality was sampled at an upstream and downstream creek site and at the wetland 24 hours before, just after a significant rain event (10/10/23 to 10/11/23) and 48 hours after. Parameters measured were water hardness, conductivity, E-coli, turbidity, pH, temperature, dissolved oxygen, and dissolved solids. Acidity (pH) and temperature values were mostly consistent across sampling dates. The remaining water quality parameters – whether increasing (ex: e-coli counts and turbidity due to added pollutants) or decreasing (ex: water hardness and conductivity due to dilution) – quickly rebound to pre-rainfall values within 48 hours of the rain event. Our results show that wetland input to the creek did not play an appreciable role in downstream water quality, except possibly for E-coli. In addition, dissolved oxygen measurements obtained from two different methods were compared and reconciled using a regression equation. A comparison between conductivity and dissolved solid measurements provided a significant correlation (R2= 0.95), showing them to be interchangeable.

Exoticism in Giacomo Puccini's Asian-Themed Operas

Amanda Gagnon
Faculty Mentor: Carolyn Guzski, Music

The brilliant Italian composer Giacomo Puccini (1858-1924) used his outstanding talents as a musical dramatist to create operas with Chinese and Japanese musical influences. He began studying opera in earnest during the 1880s when he was sent to Milan to work with Amilcare Ponchielli (1834-1886), a renowned exponent of the genre of the romantic Italian opera known as ***verismo***, which was a movement in Italian literature and music. Puccini used East Asian melodies to create two of his most outstanding operas, ***Madama Butterfly*** and ***Turandot***. Throughout the operas, one can hear many prominent Asian melodies, many featured in arias composed for the prima donnas of the title roles. Puccini gained inspiration for some of the most famous arias from Swiss music boxes, one of which was owned by Baron Edoardo Fassini Camossi (now known as "Fassini boxes"). In the late 19th century, the Swiss Romantic era composer and violinist Fritz Bovet was known for gathering Chinese melodies to be put into Swiss music boxes. This trend in musical exoticism migrated from the private sphere to the professional lyric stage during the Romantic century, fueled by the spectacular success of Bizet's opera ***Carmen*** (1875). Music boxes of this type inspired some of Puccini's greatest works and contributed to musical globalization, exposing European listeners to alternative forms of musical expression. Although Puccini's creations were not wholly authentic, his use of musical components typically heard in Asian styles gives more exposure to this type of music, furthering global exoticism in the musical world.

The Best Alcohol Beverages for Reducing Hangovers: Congeners in Alcohols

Colin Gallo
Faculty Mentor: Douglas Ridolfi, Forensic Chemistry

In this experiment, I will be determining and analyzing the congeners (different compounds) in different alcoholic beverages to understand how each of them cause the intensity of the hangovers individuals usually get after drinking. There are many varieties of alcohols in the world, and each of them have different flavors and smells to them. Those different flavors/smells are affected by different compounds other than the standard ethanol and water called Congeners. It is known that certain types of alcohols can cause different intense hangovers once drinking is finished the next day. From a toxicology standpoint, the congeners in the alcohols can help be of use for suspects with DUI cases that they claim they started drinking "after the incident." This can help determine what the person drank during that night or incident. The experiment itself involves the use of different alcohols such as Tequlia, Red Wine, Rum, Vodka, and some Beer samples (Blue Light, etc). Injecting these alcohols into a head-space gas-chromatography instrument with t-butanol as the internal standard to collect the data and determine the different number of congeners present in each alcohol sample. Other studies on this tend to show that alcohols like red wine and

rum have the highest number of congeners while beer and vodka have the least.

A Look Beyond The Eyes: Mental Health vs. Poverty

Denisha Garrett
Faculty Mentor: Jessica Fitzpatrick, Social Work

In Buffalo, Ny poverty often blocks access to resources that could help people with mental health. Lack of access to treatment causes problems to escalate, forming a ripple effect that results in an unbalanced lifestyle. The socioeconomic status of an individual can greatly impact their mental health. Poverty is traumatic and causes continuous stress, which also impacts physical health. In the United States, the ages between 40-69 indicates there is a strong correlation with stress building between the two factors of surrounding aspects and previous health status. I created a poll on a social media platform to further assist with collecting data from people who live in Buffalo, Ny. Ten people completed the poll resulting in eight out of the ten participants with prior knowledge of poverty and mental health or had an idea that poverty substantially has an effect on mental health. Three out of the eight have personal experiences of the factors and all ten agree that there is a problem. Statistically 54% of mental health illness goes undiagnosed or untreated. My poster will explore local resources that can be accessed by impoverished communities to address and support their mental health needs. In closing, poverty affecting mental health creates problems that can spiral out of control creating a negative impact on one's life. Within my research poster I will be informing the background of mental health versus poverty and include effective ways to help spread awareness.

Looking Back at Diversity in Modeling: Beverly Johnson

Israel Gayden-Pitts, Aaliyah McLean, Amani Karam, Gia Slaughter
Faculty Mentor: Arlesa Shephard, Fashion and Textile Technology

Beverly Johnson was the first Black model to be on the cover of Vogue in 1974, and after her experience of modeling she stood up against discrimination and racism towards the Black community. Born in Buffalo, New York, Beverly Johnson became a model for the fashion industry at the age of 19 in the 1970s. She went on to open doors for Black models and through a social justice lens. Johnson has now created her own company, Beverly Johnson Enterprises, and has been outspoken about the importance of including Black models on the runway and people of color behind the scenes. Our methods involved looking for sources that contained first-hand knowledge, such as quotes and interviews about her experiences as a model in the 70s. Johnson's ability to overcome prejudices and break down barriers not only made room for Black models, but also contributed to a global redefining of beauty standards. Besides stressing the continued need for inclusivity and equity within the business and society at large, Johnson's legacy highlights the need for diversity and representation in the fashion industry. ***Vogue*** has been around since 1892 but it took 82 years for them to put a Black woman, Beverly Johnson, on the front cover of the magazine. Johnson has dedicated her life to fighting racism in front of the camera and behind in her line of work. In conclusion, this topic is extremely important to highlight the social justice aspect of access, diversity, and equity which she fought for.

Motivation, Experience and Anxiety

Taha Hussain Ghadeer
Faculty Mentor: Naomi McKay, Psychology

There is a complicated relationship between motivation, experience, and anxiety, the correlation between motivation and anxiety is generally negative but there are some types of anxiety that promote motivation. In addition, as the level of experience increases the level of anxiety individuals felt decreased because they are not only able to identify the source of the anxiety they are feeling but have strategies to overcome it. There are, however, no studies that look at the interplay between general experience motivation to succeed, and anxiety during an acute stressor. The current hypothesis was that as levels of motivation and experience increases the levels of anxiety experienced during a laboratory stressor will decrease. The participants were from another study where they experienced an intensive stressor in the form of an interview. Using the data from the previous study the participants were contacted via text and email and a set of questionnaires were sent to them. The questionnaires were designed to measure the level of anxiety felt, the level of motivation they had towards their goals and the level of public speaking experience they had. The results showed that there was a weak positive correlation between motivation and anxiety (r=.3). The result also shows that experience and anxiety have a strong negative correlation (r=-.5). The conclusion is that motivation has a

weak connection in regards to alleviating the feeling of anxiety but having experience help people alleviate the effects of anxiety significantly.

How a Horn Peaks World Interest

Jonathan Golba
Faculty Mentor: Tiffany Nicely, Music

The ***didjeridu*** (also "didgeridoo") is a commonly known and favorite instrument of cultures around the globe. Traditionally from Northern Australia, where it plays a supportive role, this world-renowned horn became an entity of high interest in the late twentieth century. Though the didjeridu was known throughout Australia on a local level much earlier, it never became a headlining instrument until after the British colonized Australia and brought it back to Europe. It is now featured in performances and Ted Talks on YouTube. There are plenty of traditional musical compositions performed on a world-class level by artists such as David Hudson. Michael Atherton is another Australian performer who has played and composed the highest caliber of music in a variety of genres including a quartet that includes the didjeridu. He specializes in countless instruments, especially folk music from a plethora of countries, so he just might know what he's doing. My research asks the questions: how exactly is the didjeridu used traditionally, how was it introduced into world culture, and how does it affect our culture today?

Multi-Sensory Experiences in Nature and Their Impact on Stress

Tina Haberer
Faculty Mentor: Stephani Foraker, Psychology

A variety of research studies suggest that exposure to nature can greatly impact mental well-being and cognitive function (Bratman et al., 2012; Keniger et al., 2013). Those who feel connected to nature are likely to experience reduced levels of stress, anxiety, and depression. According to the cognitive embodiment approach, our mental perceptions are shaped by our physical experiences. In my study, I will examine, from full immersion to subtle awareness, how does touch, smell, hearing and vision during multi-sensory engagement with nature impact cognition and stress? The purpose of this research is to gain deeper knowledge of multi-sensory experiences in nature from multiple perspectives, and to identify correlations between the multi-sensory aspects and their impact on decreasing stress. For this study we will survey volunteering Buffalo State students. We will collect participants' descriptions of memorable experiences in nature. This will be followed by specific questions relating to nature and the senses. From this we will review which senses were stimulated and the influence it made. The Perceived Stress Scale (Cohen et al., 1983) will be applied to measure reported stress. Using the data collected we will compare Perceived Stress Scale (PSS) stress results with the sensory data and analyze correlations to draw a conclusion. Acknowledging that nature can be quite subjective from person to person, we will be exploring what Buffalo State students consider to be "activities in nature." We are currently collecting data and will be presenting the results.

If America Loves Our Children, Why Don't We Care for Them?

Breanna Haley
Faculty Mentor: Jessica Fitzpatrick, Social Work

My research question is: What does poverty and access to childcare look like in Buffalo, New York? Since federal childcare assistance programs are not entitlement programs (they do not serve everyone who is eligible), only 1 out of 6 children in the U.S. eligible for childcare assistance will receive it. This is due to inadequate funding. Therefore, most parents need to cover the entire cost of childcare, despite the rising costs. The U.S. Department of Health and Human Service acknowledges that childcare in the U.S. is not affordable. To discover the relationship between poverty and access to childcare in Buffalo, I sent a survey to individuals living in the area to collect and analyze their views on the topic. I have also reviewed local news stories and research reports. I expect to find the relationship between poverty and childcare in Buffalo to be similar to that of the rest of the country. There are some resources in Buffalo to address this issue, such as the Child Care Resource Network, the Social Services office, and the Family Help Center, that advocate for families and children in need and help families access affordable childcare. I hope my research will raise awareness on this issue and inspire us to take action and create change.

Logic Family Structures

Diamond Hamilton
Faculty Mentor: Stephanie Goldberg, Engineering Technology

For my research, I would like to dive deeper into understanding the inner workings of logic circuits as well as their packaging. I hope that the audience finds interest in the electrical and mechanical aspects of the project, seeing how the different gates alter the voltage and current throughout the system. Specifically, this project will encompass how and-gates and or-gates are made with the two different types of transistors, BJT transistors from the TTL logic family and the MOSFET transistors from the CMOS family. A BJT transistor can be used to function like a switch, which controls the current flow based on the input signals. A MOSFET transistor is the most common type and is used to control the flow of electricity within the system. The results and observations discovered during this project will explain how these two types of transistors are used within a circuit and how their functions differ from each other.

iParent: Safeguarding Children on Roblox

Sereen Hasan
Faculty Mentor: Sarbani Banarjee, Computer Information Systems

In January 2024, the popular online gaming platform Roblox, which targets itself to children and teens, had an average of 70.2 million daily users. With such a large online community, games are often poorly regulated and inappropriately include mature themes that minors should not be thoughtlessly exposed to. Such themes in the past have included gun violence, profanity, and sexual and racist content. This project proposes the development of an application (App) to allow parents and guardians of these minors to have full personalized control and intel of their child's experience within Roblox. Within this project, Python will be used to develop a mobile application for monitoring Roblox activity. Data collection will involve integrating Roblox application programming interfaces (API) directly into the application, that will be supplemented by web scraping techniques like the BeautifulSoup library. Text and behavioral analysis will be performed within the App using regular expressions and algorithms to detect inappropriate behavior and patterns in user interactions. The App will additionally feature user reporting and moderation tools for addressing suspicious activity, along with parental controls for monitoring and managing children's usage. Throughout development, the project will utilize PyCharm and Visual Studio for coding, testing, and debugging to ensure compatibility between platforms. The ultimate objective of this project is to develop a functional application that effectively monitors a child's activities on Roblox, offering parental figures a sense of reassurance and peace of mind.

Determination of Hydrocodone Concentration of Prescription Hydrocodone/Acetaminophen Tablets

Bailee Hauck, Bee Battaglia, Corinne Lapp
Faculty Mentor: Douglas Ridolfi, Forensic Chemistry

The popular opioid Hydrocodone/Acetaminophen is a strong prescription pain reliever. The objective of this study is to determine the purity of a prescription tablet of Hydrocodone/Acetaminophen. We will develop an extraction scheme to separate the hydrocodone and acetaminophen. Using the extracted purified hydrocodone, we will compare it against standard solutions of five different concentrations: 20 µg/ml, 40 µg/ml, 60 µg/ml, 80 µg/ml, and 100 µg/ml to measure concentration and recovery. This will allow us to create a calibration curve for the UV-Visual absorbance of hydrocodone using Beer's Law. Finally, hydrocodone will be extracted from three more tablets to produce the three trials in which we will compare the calibration curve to determine the average concentration of hydrocodone in each tablet.

Analyzing Suicide Rates Amongst Men: A Data Visualization Project Using Google Colab

Jayden Heath
Faculty Mentor: Sarbani Banerjee, Computer Information Systems

This research project attempts to analyze the complex issue of suicide rates among men, aiming to uncover patterns and potential factors contributing to this phenomenon. The questions driving this investigation are as follows: What mental health conditions or disorders are most associated with suicide? Is there a correlation between substance abuse and suicide rates? What is the overall trend in suicide rates over the years covered by the dataset? What demographic groups

are most affected by suicide? To answer these questions, background information regarding the prevalence of suicide, particularly among males is provided. With data collected from countries all over the world, the effects of mental health over the years and its correlation to substance abuse and disorders will be displayed. The methodology involves Python programming using Google Colab and utilizing datasets sourced from the source Kaggle. Matplotlib is a comprehensive library for creating visualizations in Python and Seaborn is a Python visualization library based on Matplotlib that will be used in this project. Pandas is a popular Python library and will be used to manipulate and structure the data. All three of these libraries integrate well with each other allowing the best statistical visualization. By employing exploratory data analysis and visualization tools, this research project aims to identify correlations and patterns within the data. Preliminary findings reveal geographical variations in suicide rates among men, along with potential correlations with economic indicators and mental health resources availability. These insights provide a foundation for further analysis and exploration.

Dextromethorphan: A Commonly Used Drug with Hallucinogenic Effects

Nevaeh Herd
Faculty Mentor: Douglas Ridolfi, Forensic Chemistry

Dextromethorphan (DXM) is a commonly used over-the-counter drug that is found in over 120 various medicines used as an antitussive to relieve coughs caused by common sicknesses. DXM can be used on its own or in combination with other drugs such as analgesics, antihistamines, and decongestants. It functions by suppressing activity in the brain that controls the cough reflex. However, when used in high concentrations individuals taking dextromethorphan can experience hallucinations and other sensations such as nausea, dizziness, blurry vision, and slurred speech. These symptoms are similar to other drugs sought for their hallucinogenic effects and can last for up to hours at a time before they subside. Dextromethorphan can come in many forms including but not limited to cough syrup, capsules, tablets, and powders. Due to these multiple forms, it allows the possibly of DXM being abused in order to achieve the hallucinogenic effects. Individuals incorrectly taking this drug more than what is recommended, increase the risk of potentially dangerous side effects and even death. To ensure prevention of these symptoms it is important to accurately quantify the concentration of dextromethorphan that could be present within a sample. The concentration of DXM can be determined by various instrumental techniques such as Emission Fluorescence Spectroscopy, UV-Visible Spectroscopy, and IR Spectroscopy. These techniques either on their own or combined provide insight into what is truly present within our OTC medicines.

Franz Schubert's Symphony No. 8: Finished or Unfinished?

Tehillah Hill
Faculty Mentor: Carolyn Guzski, Music

Franz Peter Schubert (1797-1828) was a renowned composer who created many works in the earlier stages of the Romantic period of music. Even though he lived a short life of only 31 years, he composed over 600 compositions across multiple genres: operas, masses, chamber music, piano music, and symphonies. Surrounded by a musical family, Schubert began composing in his teenage years. In the late stages of his life, he discovered that he was battling the fatal illness syphilis. It was during his illness that he composed some of his most acclaimed pieces, including the ***Symphony No. 8 in B minor***, D.759 ("Unfinished) in 1822. A composition filled with emotional intensity that catches the listener's attention, this musical score has stood out historically because it only has two movements, while other symphonic composers typically used three or four. In addition, this score was written six years before Schubert passed away, which then helped it gain the nickname the "Unfinished" Symphony. In fact, Schubert still had six more years to complete it and perhaps "finished" it according to musical standards at the time. In order to illustrate and symbolize the short amount of time that he had left in his life due to the lack of treatment resources for his fatal illness, the composition might have been purposely cut short. It also may have been meant to exemplify that while Schubert was at his highest point as a composer, his life was in moving in a tragic downward spiral.

What Does Gospel Music Mean & What Is Its Significance?

Tehillah Hill
Faculty Mentor: Tiffany Nicely, Music

Throughout the years, we have come to the mutual understanding that African-American gospel music was derived from times where the African-American slave trade took place and other unfortunate events in history. Gospel music is much deeper than many have portrayed it. Gospel

music is a sense of hope, freedom, and a way to express oneself to God. What is the gospel? A lot of people don't have the understanding that the word "gospel" means "good news/ tidings" in Hebrew. What is the good news? It is that there is hope not only for African Americans, but for succeeding generations. The dictionary states that it is "The teaching or revelation of Christ." Through Him, they found comfort, love, freedom and truth. Gospel music is "spreading the good news" that Jesus has died and rose up from the grave, and He has forgiven people despite their wrongdoings and imperfections. Many believe that Jesus has saved them from hurt and pain through compassion. Gospel music is their testimony, position of reverence, honor, and thankfulness for His never-ending and never-failing love. It is the point of humility, surrender, and repentance to Him that illustrates their inability to do this all on their own and their dependence on Him when they are weak. Singing, dancing, clapping, and shouting to Him are some methods used to express love and faith through Gospel music performance. Many African Americans use this art form to encourage and understand music as a universal language and share their stories. My research seeks understanding of its lasting impact.

Cannabis Usage and its Effects on Cortisol

Brent Howes
Faculty Mentor: Naomi McKay, Psychology

Not much research has been done observing how chronic cannabis usage affects cortisol. Most of the research that has been done has shown that chronic cannabis usage blunts cortisol elevation. Though, most of that research only looked at cortisol elevation between acute, and chronic users of cannabis, rather than cortisol elevation in response to a stressor. There has been only a small amount of research done looking at how chronic cannabis usage affects cortisol elevation in response to a stressor, and what has been done has also shown a blunted cortisol response. The proposed study aims to replicate and extend these findings to students at Buffalo State University. This study looked at self-reported cannabis usage from female students at Buffalo State University, and how their cortisol levels elevated in response to a stressor. The stressor in this study was a mock job interview in front of a committee of students who were instructed to be disapproving of the participant in order to induce stress; the participant was also tasked with performing a serial subtraction test, subtracting from the number 2,000 in increments of 7. We found no difference in cortisol elevation in response to a stressor between users and non-users. This contradicts previous research on the subject, and commonly self-reported anxiolytic effects of cannabis.

How Has COVID Affected Risk-Taking Behaviors Among Current Emerging Adults?

Alana Jacowitz
Faculty Mentor: Amy Manning, Social Work

As a Social Work major, the EURO program offered a great opportunity to work with prevention researcher Dr. Amy Manning on her research. I began by exploring the ethics of research by completing an online CITI training. This training helped me remain unbiased throughout the research process. Working with Dr. Manning, we propose the question: How has COVID affected risk-taking behaviors among current emerging adults? I added to Dr. Manning's research with the construct "Petty Crime," looking at initiation and expectations of this contruct in our designated population. Working with Dr. Manning, I have learned about the IRB process and importance of the IRB when conducting ethical research.

Was Mozart an Instrumental Music Influencer?

Kaleigh Januchowski
Faculty Mentor: Carolyn Guzski, Music

Wolfgang Amadeus Mozart (1756-1791) was a crucial composer: not only was his music essential to understanding the 18th century Classical style, but his repertoire remains highly influential in the 21st century. Two of his musical scores that feature the clarinet demonstrate his influence. Mozart's Clarinet Quintet in A major, K. 581 (1789), and Clarinet Concerto in A Major, K. 622 (1791) feature an instrument which during Mozart's lifetime was brand new to the instrumental world. Anton Stadler, a virtuoso Austrian clarinet player, who introduced the instrument to the musical scene, was a peer and close friend of Mozart. It is to be believed by many that Mozart wrote significant clarinet repertoire to showcase Stadler's virtuosity. Both of these scores were written late in Mozart's life and represent some of his last creations. Mozart's final piece of his career was his ***Requiem in D minor***. This piece did not feature the clarinet, but rather the basset horn, which replaced traditional clarinets.The goal of my research is

to show how Mozart has influenced instrumental music using different instrumentation including the clarinet.

Satanic Panic: A Case Study of Snakeland in Buffalo, New York during the 1980s

Emily Jarnot
Faculty Mentor: Bridget Chesterton, History and Social Studies Education

The Satanic Panic of the 1980s was a significant cultural phenomenon marked by widespread fear and moral panic regarding alleged Satanic cult activity and abuse. This study delves into the case study of Buffalo, New York and focuses on the local manifestations of this social hysteria. Local alleged Satanic sites like Snakeland added to the urban myths and collective fears as epicenters of deviant activity. Local Buffalo musicians fueled local panic with disturbing lyrics and stage performances were comparable to the lyrics of the Filthy Fifteen, which added to the American panic. By focusing on Buffalo, my project contributes to a deeper understanding of the Satanic Panic phenomenon and its localized dynamics. Drawing upon interviews, newspaper articles, legal documents, and media coverage, this study explores the factors that contributed to the panic in Buffalo. Through this case study, the broader American experience of societal anxieties, media influence, parental control, law enforcement reactions, and moral panic emerges. This study contributes to a deeper understanding of the Satanic Panic and its community impact during the 1980s.

Development and Evaluation of an Advanced Network Intrusion Detection System (NIDS)

Woodlen Jean-Baptiste
Faculty Mentor: Sarbani Banerjee, Computer Information Systems

This project centers on the development and evaluation of an advanced Network Intrusion Detection System (NIDS) to address the growing cybersecurity challenges faced by organizations. In today's digital landscape, the proliferation of network-based cyber-attacks poses significant risks to organizational data, systems, and operations, necessitating innovative intrusion detection solutions. The proposed NIDS solution leverages custom algorithms, real-time monitoring capabilities, and integration with existing security infrastructure to enhance network security posture and mitigate security risks. The methodology involves integrating packet sniffers, traffic analyzers, machine learning algorithms, and rule-based detection engines within the organization's network infrastructure. Through extensive testing and evaluation, the performance, accuracy, and scalability of the NIDS solution are assessed under various network conditions and attack scenarios. Preliminary results demonstrate promising improvements in detection accuracy and response time. The anticipated outcome of this project is the development of a robust NIDS solution capable of proactively detecting, responding to, and mitigating network-based cyber threats. By strengthening organizational cybersecurity defenses, the NIDS solution aims to safeguard critical assets and ensure business continuity in the face of evolving cyber threats. In conclusion, this project represents a significant step towards enhancing organizational cybersecurity in today's complex threat landscape. By leveraging advanced intrusion detection techniques and real-time monitoring capabilities, the developed NIDS solution aims to empower organizations with the tools and capabilities needed to effectively combat cyber threats and protect sensitive data and assets.

Understanding the AIDS Crisis of the 1980s and its Impact in the Midwestern Region: A Historical Analysis

Kevin Johnson
Faculty Mentor: Bridget Chesterton, History and Social Studies Education

This research project dives into the specific impact of the AIDS epidemic in the Midwestern region of the United States during the 1980s. Using data collected from scholarly journal articles, interviews, scientific data and reports from individuals with AIDS, and people who studied the crisis, the data examines the unique sociocultural, economic, and healthcare factors that influenced the spread of the disease and shaped responses at the local and regional levels. The study provides a historical overview of the emergence of AIDS in the Midwestern states, the challenges faced by both men and women in communities, and the strategies implemented to address the epidemic. By focusing on the Midwestern context, this paper contributes to a more nuanced understanding of the AIDS epidemic in the United States and its impact on diverse communities.

Exploring East Asia: The Cultural Impact of Mongolian Throat Singing

Cameron Juzdowski
Faculty Mentor: Tiffany Nicely, Music

This study explores how the practice of Mongolian throat singing serves as a cultural expression of spirituality, identity, and the environment. Mongolian throat singing is when a performer produces more than one pitch, or note, at the same time. The production of overtone singing is unique and requires technical manipulation of the vocal apparatus. The singer phonates a fundamental drone that is combined with other overtones in the harmonic series. This study addresses performance contexts, theories of origin, historical development of the practice, and the connection to spirituality. There are a myriad of cultural contexts in which this style of singing is performed that help draw on the significance of this practice. The examination of the spirituality, identity, and environment regarding Mongolian throat singing allows for understanding about how this musical practice shapes cultural values, beliefs, and experiences of those who practice this technique. Specifically, what is the cultural impact of Mongolian throat singing and how does it serve as a form of cultural expression?

Parking Palooza: Avoiding Campus Car-tastrophes!

Shaikh Ismid Jobayer Kibria
Faculty Mentor: Sarbani Banerjee, Computer Information Systems

Buffalo State University has over 5,000 students and 1,500 faculty members, but has limited available parking spots on the whole campus. Sometimes, looking for a place to park could end up being much more time-consuming than just focusing on your falling GPA or solving quiz problems. A more frustrating fact is that even if you find a good parking spot, you cannot stay there for too long, as there are specific time limits for those places. An app with the right data and proper records of all the available parking spaces and their time limits at Buffalo State would put a halt to this frustration very easily. We are going to use javascript (jsx) programming language for the parking assistance project. The packages or frameworks used for this project are going to be React Native so we don't have to code the project separately for Android and iOS. We are going to use Visual Studio code for IDE. The project will include Google Maps so we will use Google Maps API. To store the user data on the cloud, we are going to get Amazon DocumentDB and a virtual private server. Accessible to all Buffalo State students, through Bengal Connect with a link to the app that redirects them to the App Store/Play Store, the app focuses on finding the right parking spot for students within the shortest period of time.

Stress and Energy Intake

Lillyan Kingsbury
Faculty Mentor: Naomi McKay, Psychology

The Trier Social Stress Test (TSST) is a commonly used laboratory stressor that notably raises physiological markers such as blood pressure and heart rate. While the TSST reliably raised other physiological markers it has inconsistently raised cortisol levels among participants. The current literature lacks studies that have assessed whether a modification to the TSST would be a more effective laboratory stressor for raising cortisol levels. The hypothesis was that a modified TSST would significantly raise cortisol level over the original TSST. Participants were randomly assigned to one of three conditions: No stress, Interview (modified TSST), and Original TSST. Participants assigned to the interview condition were contacted one day prior to their lab visit and researchers notified the participant that the study required an interview and to prepare to present before a committee of researchers. Participants who were assigned to the TSST were notified about a mock job interview during the lab visit. Researchers monitored heart rate and blood pressure nine times and collected five saliva samples from each participant across all conditions. There was a significant interaction between stressor and time ($F(6, 150) = 11.94$, $p < .001$); post-stress anxiety was significantly higher for both stress conditions. Another significant interaction between stressor and time was cortisol ($F(6, 141) = 2.63$, $p = .02$). Cortisol was elevated during both stress conditions throughout the study. Finally, there was a significant effect of stress on energy intake ($F(2, 50) = 3.68$, $p = .032$); Mock Job participants consumed less than No stress participants. There was no significant difference in food intake between the Interview and the No stress condition.

How Gustav Mahler was Inspired by Childhood Experiences

Hannah Korytkowski
Faculty Mentor: Carolyn Guzski, Music

Inspired by a unique childhood, Gustave Mahler (1860-1911) is known for his incredibly complex and emotional musical scores. Two significant ***Lieder*** are "Urlicht" and "Ich bin der

Welt abhanden gekommen," an independent Lied from the ***Rückert Lieder*** song cycle (1901). Both Lieder showcase the influences Mahler drew on from his childhood experiences. My project explores the ways in which such a complex composer was artistically shaped by the world around him. Mahler is known for pulling inspiration from the militaristic music he was exposed to in his childhood, as well as the sounds of nature. The pull and push of the melodies and shifting chromatic harmonies typical of the late Romantic period in which he worked mimic a flowing river or the wind. Mahler is known for his highly emotional scores, both in a positive and negative sense. What drew me to Mahler's musical expression overall is his unique use of harmonic dissonance and the complexity of the chords constructed in a way that nevertheless engages listeners with a sense of inevitability. Something I found very interesting about Mahler's ***Rückert Lieder*** and "Urlicht" is that they escape conventional analysis. The chords and melodies are so complex that they must be heard to be appreciated.

K-Pop and K-Rap: How Specific Artists Shape the Industry

Hannah Korytkowski
Faculty Mentor: Tiffany Nicely, Music

K-pop has become increasingly popular worldwide in recent years, but how have particularly influential artists shaped the industry and pushed that popularity forward? K-pop as a genre was formed in the 1990s; however, it did not rise to popularity in the West until 2012 with "Gangnam Style" by Psy. Just one year later, in 2013, we see the debut of what will become the most influential K-pop group to exist to date, Bangtan Soyeondan aka BTS. They would not achieve popularity in Korea until a year later, and global popularity was much slower to achieve. 2015 saw their debut on the Billboard 200, but 2016 and 2017 is when their careers really took off. Up until this point, the structure of a group was one of the defining features of K-pop. BTS began the breakdown of this mold, as well as paving the way for future groups with their sound. One of their defining features has always been their strong rap line, and their songs reflect this strength. I discovered K-pop in the fall of 2019, and since then I have been able to watch as these changes progress through the industry and into the world I inhabit. In this project, I aim to explore the connections between these specific artists and the changes they advocated for and made in the K-pop and Western music industries.

Papa Tárrega: Father of the Classical Guitar

Yaileen Kren-Colon
Faculty Mentor: Carolyn Guzski, Music

The world of classical guitar would not be the same without the touch of a certain Spanish composer of the Romantic Age. Because of Francisco de Asís Tárrega Eixea (1852-1909), the acoustic instrument became less of an accompaniment and more of a recital instrument. My study focuses on three of his solo compositions that have entered the standard guitar repertoire: ***Capricho Árabe*** (1892), ***Recuerdos de la Alhambra*** [Memories of the Alhambra] (1899), and ***Gran Vals*** [Grand Waltz] (1902). ***Capricho Árabe*** was dedicated to Tárrega's friend Tomás Bretón, after they took a trip together through Andalucia and North Africa. Likewise, ***Recuerdos de la Alhambra*** was inspired by the composer's visit to the storied Alhambra palace and fortress complex in Granada, Spain and is dedicated to his patron Concepción Gómez de Jacoby. Of the three pieces, ***Gran Vals*** was not actually composed but rather arranged by Tárrega—the piece had gained such popularity that the famous Finnish Nokia company adopted an excerpt as their ringtone. The mistaken belief exists that the guitar originated in Spain, due to Tárrega's substantial influence in putting Spain on the musical map for Romantic guitar, when in fact the instrument is derived from Italy. The three pieces I have chosen from Francisco Tárrega's contributions to the solo guitar repertoire helped shape and define the instrument using revolutionary techniques.

U2: Lyrical Messages beyond Sex, Drugs, and Rock and Roll in America during the 1980s

Kaleigh Kropidlowski
Faculty Mentor: Bridget Chesterton, History and Social Studies Education

U2, an Irish rock band formed in Dublin in 1976, is considered one of the most successful and greatest rock bands of all time. The band is known for their commercial, touring, chart, and award successes, but they are also regarded as the "most effective activists ever." Their activism has helped raise billions of dollars to aid charities and causes globally. This poster will explore how U2 used their musical platform during the 1980s to raise awareness about ongoing issues concerning war, poverty, disease, politics, and religion. One of the most influential ways U2 raised awareness was through their music, specifically through their song lyrics. Bono, U2's

lead singer, wanted to write songs about what he and the band saw happening around the world during the 1980s. They also took part in benefit concerts to raise money for charities and causes, and to increase awareness of human rights. The types of primary sources discussed include song lyrics, interviews with members of the band, documentaries and videos of concerts, and books written by U2. U2's music is far from the stereotypical rock'n'roll band of that decade, where the music scene was centered on sex and drugs. The band made waves globally in terms of creating a fan base that also wanted to see change happen.

Seasonality & Infant Mortality Caused by Diarrheal Diseases 1880-1883

Kaleigh Kropidlowski
Faculty Mentor: Julie Wieczkowski, Anthropology

During the 19th century, death among infants in the United States increased rapidly in summer months due to diarrheal diseases. There was a link between seasonality and the underlaying cause of death (Cheney, 1984). I hypothesized that infant mortality caused by diarrheal diseases would peak in the summer. I used Death Register Volume C 1875-1886 from Forest Lawn Cemetery, starting in 1880 with letter A. I recorded the names, dates of death, age at death, and cause of death of 100 infants who died from diarrheal diseases. These diseases included but were not limited to diarrhea, weaning diarrhea, cholera, cholera infantum, inflammation of the stomach and bowels, fever, neurological manifestations, and enteric infections. Data collection ran into 1883 as the number of infants did not reach 100 individuals in 1880. I analyzed the data by comparing peaks of infant mortality during summer versus spring, fall, and winter months. Twelve different diarrheal and diarrheal related diseases were recorded. Fifty-six percent of deaths occurred in summer months, 25% in fall, 10% in winter, and 9% in spring. The leading cause of death was cholera infantum; the second leading cause was convulsions. My hypothesis was supported. As the year progressed, into fall, winter, and spring, these percentages declined. In Philadelphia, higher levels of infant deaths occurred in July as the mean temperature for the month increased (Cheney, 1984). Early in the summer months, deaths peaked with warm weather and decreased slowly throughout the rest of the summer.

Perception of Different Forms of Abuse in Romantic Relationships Among University Students

Abigail Kruse
Faculty Mentor: Eyad Naseralla, Psychology

Domestic violence is often associated with long-term physical abuse. However, this is not always the case. Abuse can be physical or psychological, and it can be one time or recurring. In this study, we look at the effects of abuse type and frequency on perceptions of domestic violence in university students. Participants will be asked to read a vignette describing a domestic violence relationship in which the abuse type and frequency are manipulated. Participants will then complete scales assessing seriousness, blame, affect, and the Ambivalent Sexism Inventory. We hypothesize a main effect of abuse type on affect, blame, and seriousness. Compared to when the abuse is psychological, participants will feel more negatively toward the victim, blame the victim less, blame the perpetrator more, and feel that the situation is more serious when the abuse is physical. We also hypothesize a main effect of abuse frequency on affect, blame, and seriousness. Compared to when the abuse is new, participants will feel more negatively toward the victim, blame the victim more, blame the perpetrator less, and feel that the situation is more serious when the abuse is recurring. Lastly, we hypothesize that there will be a significant abuse type X abuse frequency interaction. Compared to when the abuse is physical, participants will feel more negatively toward the victim, blame the victim more, blame the perpetrator less, and feel that the situation is more serious when the abuse is psychological, especially when the abuse is also recurring (compared to new).

The Fula Flute vs. the Western Flute: A Trip to Western Africa

Julia Kuk
Faculty Mentor: Tiffany Nicely, Music

If you are a flute player or even if you are someone who wants to pick up a new instrument to try, the Fula Flute should be at the top of your list. The Fula Flute, also known as the ***Tambin***, is the national instrument of the Fula people of West Africa. While this instrument has existed for ages, the Fula Flute is a little-known instrument throughout the world. The characteristic rich sound and unique voice should gaining more attention. It is constructed from a thick, woody vine called "Tanbin." The vine has sturdy outer walls and is entirely hollow making it the perfect material for a flute.

The flute only has three holes but has an incredible range of two and a half octaves. Traditionally, this flute is tuned to an ancient equidistant heptatonic scale (a seven-note scale where all intervals are equal). How does the Tambin differ from a classical flute? While both flutes classify as woodwind instruments, the structures are quite different. My research focuses on the similarities and differences between these two flutes. While the Fula Flute and the Classical Flute are quite different in the way that they are made and used, both instruments should be celebrated for their gorgeous, sweet tones.

Poverty and Mental Health in Buffalo

Alexius LaFalce
Faculty Mentor: Jessica Fitzpatrick, Social Work

My research question is: What poverty and mental health and access to help looks like in Buffalo, New York. Nationally and internationally, there is a correlation between wealth and mental health disorders. Poverty has been shown to be a risk factor for mental health disorders. In order to learn about poverty and mental health in Buffalo, I created a poll of ten people in Buffalo. I also reviewed local news stories and they found similar results as international and national findings that poverty is linked with mental health disorders. I expect to find, like the rest of the United States, that people in Buffalo, particularly those that are struggling with poverty, have issues with mental health disorders and finding access to professional help. There are resources in the community that help with poverty and health care, but it is hard to say if this health care extends to mental health services as well. I hope this poster can let people know how big of an issue this is globally and in Buffalo. I also hope this encourages people to get involved and figure out ways to help make services more accessible both ways.

Temperature, Soil Moisture, and Plant Growth Influence Soil CO_2 and CH_4 Fluxes

Nikkita Laidlaw
Faculty Mentor: Daniel Potts, Biology

Depending on environmental conditions and biota, soil may serve as sources or sinks of CO2 and CH4, effective atmospheric greenhouse gases. Whereas soil CO2 is the product of the metabolism of plants and bacteria, soil CH4 flux is determined by the activity of methanotrophic and methanogenic bacteria. My first research objective was to determine how temperature influences the effect of soil water saturation on CO2 and CH4 flux. My second objective was to quantify the relative contribution of plants and soil microbes to soil CO2 efflux and their influence on soils as a CH4 sink. To address my first objective, I designed a greenhouse experiment testing the effects of soil saturation and temperature on CO2 and CH4 fluxes using constructed wetland microcosms. I predicted that CO2 flux would be greater in unsaturated warm soils, and CH4 flux would be greatest in saturated warm soils. Consistent with my prediction, CO2 efflux was greatest for unsaturated soils in warmer temperatures, however, temperature and soil saturation did not appear to influence CH4 flux. For my second objective, I compared vegetated and unvegetated greenhouse microcosms to examine the contribution of plants and soil microbes to total soil CO2 efflux and understand the influence of plants on soil CH4 sink dynamics. The results of this research speak to the interplay between soil moisture, temperature, and soil biota in influencing terrestrial carbon cycling and may inform soil management strategies to mitigate greenhouse gas emissions.

Chopin's Polish Nationalism

Maya LaMacchia
Faculty Mentor: Carolyn Guzski, Music

Fryderyk Franciszek Chopin (1810-1849) expressed his Polish nationalism through incorporating elements of traditional Polish music into his compositions. During the 19th century, composers working in the European art music tradition expressed their Romantic Nationalism, a celebration of culture through the harmonically rich and highly emotional style of the time. Chopin may have been influenced during his childhood: he spent his summers in the Polish countryside around the village of Szafarnia, exposing him to Polish folk music. He also took piano lessons from Jozef Elsner (1769- 1854), whose compositions were influenced by Polish folk music and nationalism. Chopin composed a multitude of Mazurkas, which are a Polish national dance. Chopin's ***Mazurkas***, op. 68, nos. 1-3 (1830, 1827, and 1830, respectively) distill elements of the folk mazurka in their rhythmic and melodic structures. This is shown in his use of the Lydian mode and the traditional bassline drones (inspired by the Polish bagpipe known as the ***dudy***). Other aspects like the use of triple meter and accents on the weak beats of a measure rather than the downbeat (as in the typical Waltz) were characteristic of Polish mazurkas well before Chopin's time. In the 19th century, Poland did not have independence as a nation state. It did not gain independence from the Russian Empire until 1918. Chopin, a Romantic Nationalist in culture rather

than politics, composed in a genre that portrayed a yearning for traditional Polish culture at a time when Poland was under imperial repression.

Real-Time Visualization of YDLidar 4X Data in Unity via ROS2 on Raspberry Pi 4

Yongjun Lee, Eric Barton
Faculty Mentor: Gang Hu, Computer Information Systems

This work presents a novel approach for real-time visualization of LiDAR data using a YDLidar 4X connected to a Raspberry Pi 4 running ROS2, with data visualized in the Unity engine. The objective is to leverage the real-time data processing capability of ROS2 and the advanced visualization tools of Unity to create an efficient and interactive LiDAR data representation system. The process begins with the installation of ROS2 on the Raspberry Pi 4 and the setup of the YDLidar 4X. The LiDAR data is published to a ROS2 topic using a specifically tailored YDLidar ROS2 node. Concurrently, a Unity project on a separate machine utilizes a ROS2-Unity bridge, such as ROS, to subscribe to and import the LiDAR data. Essential to this process is the network configuration ensuring seamless communication between the Raspberry Pi and the Unity platform. The Unity application processes the incoming data, converting the LiDAR readings into a dynamic 3D visualization. This system offers a unique, user-friendly interface for observing and interacting with LiDAR data in real time, significantly benefiting applications in robotics, environmental mapping, and virtual simulations. The implementation demonstrates low-latency data transmission and high-fidelity visualization, showcasing the potential of integrating ROS2 with Unity for advanced LiDAR data applications.

The Mysteries of the World: Overtone Singing

Sebastiano Lombardo
Faculty Mentor: Tiffany Nicely, Music

Music from different parts of the world has become more accessible than it has ever been. Thanks to the hard work of many ethnomusicologists, we are able to hear what ethnic groups in Indonesia sound like, or how a typical Beijing opera looks and sounds. One such discovery that has been an auditory wonder recently has been throat-singing, also known as overtone-singing. This technique requires a different perspective on what it means to "sing", as well as taking advantage of the throat cavity in order to engage the harmonic series and bring the unique sound to your ears. While Mongolia is the country most associated with the technique, there are many parts of the world that overtone-sing. For the scope of this presentation, I will focus on Mongolia and the Republic of Tuva—the latter being a region in Russia. Within the singing style itself, there are many kinds that bring different sounds to the listener's ear. ***Khöömei*** is the first kind and "easiest" style to learn. ***Kargyraa*** is the next, with a more guttural sound associated with it. ***Sygyt*** style has a whistle-like tone that is emitted. Finally, there is ***Ezenggileer***, which is described to sound like someone on horseback when done properly. There are many other substyles, but these are viewed to be the most common and most researched. With the sounds of overtone-singing, one often wonders how it came to be. In this presentation, I describe the setting behind the style, the significance of why it's important, and demonstrate a taste of one of the styles.

Parental Guilt and Shame in Children With Parents with a Mental Illness

Regina Coeli Long, Psychology
Faculty Mentor: Naomi McKay, Psychology

Mental illness in parents is seen within many families and has been researched to discover how children can best cope with the effects. It had previously been found that 7.2% of children had a parent with poor mental health and 4% of children were most likely to get a mental illness. Another study determined factors that help to prevent mental illness from spreading to children. It was found that families who practiced externalizing coping strategies experienced high self-esteem and low self-esteem existed within families who used passive coping strategies and internalized their issues. Past studies reveal how children are affected by the mental illness of their parent(s). The effects lead them to a low quality of life from an increase in anxiety, depression, and low self-confidence. There is still a lack of literature that determines guilt and shame in children with parents with mental illness, which can be an underlying cause of self-confidence. The current study had three hypotheses. The first was that there was a decrease in self-confidence in participants with higher feelings of parental guilt/shame. The second hypothesis was that participants with a parent with a mental illness would have higher guilt and shame. The third hypothesis was that, in participants with a parent with mental illness, their self-confidence would be lower. The current study had participants complete three

online questionnaires measuring the three hypotheses. The results revealed that self-confidence decreased in participants with higher feelings of parental guilt and shame and was higher in participants who had a parent with a mental health disorder. Lastly, in participants with a parent with a mental health disorder, self-confidence was lower.

OLV Human Services

Kelsey Lorrens
Faculty Mentor: Jessica Fitzpatrick, Social Work

For my senior year in Social Work, I have been placed at OLV Human Services in the Early Education department at St. John's Parkside. This program is suited for children 2 ½ to 5 years old. Children there can be neurotypical as well as have developmental disabilities. I have been able to apply the nine Social Work competencies that I have learned throughout my academic career in relation to the work I have done with the children. Some of the things the program has to offer are: Lead Teachers Certified in Early Childhood and Special Education; Pre-K curriculum based on NYS Common Core standards; On-site therapists–PT, OT, speech, and counseling; Yoga sessions for preschool classrooms; and weekly group music therapy. This work has inspired me to always look at the progress even if it is something small. To always connect and build a relationship and not just correct. I have completed many projects during my placement. I have created a community binder. This is for employees looking to help parents with outside therapies. Anyone can go into the binder and find places to go to get their child's needs met. I have also created a document to put into the welcoming packet, consisting of holidays and religious days. I believe it is important to know your clients. My hope is that there will be more funding for these types of programs to better assist them in building brighter futures for children in the community.

Immigrants: Struggles with Poverty

Susana Loyola
Faculty Mentor: Jessica Fitzpatrick, Social Work

Due to their contributions in a wide range of disciplines, immigrants have a significant impact on the U.S. economy. However, there is still a greater complexity in the relationship between immigration and poverty. This abstract explores the relationship while emphasizing the unique challenges faced by communities of immigrants. The poverty rate among recent immigrants is more than twice as high as that of Native Americans. In Buffalo, New York the population is an estimated 276,000 and with a rough estimate of 12,300 immigrants and refugees and about 25% live in poverty. Language barriers, differences in the recognition of foreign identification, and a lack of proper safety nets are a few examples of factors that increase their vulnerability. Immigration affects the landscape even though it may lower overall poverty rates. The likelihood of poverty is increased within immigrants since immigrants frequently work in low-skilled professions with lower pay and fewer benefits. For example, their job could be labor related things, construction, and things related to agriculture. As previously mentioned immigrants tend to have lack of resources and lack of proper safety nets. It is essential to comprehend how immigrants might utilize safety-net programs. Their utilization of Medicaid, SNAP, and housing assistance is impacted by difficulties related to language, documentation, and culture. In summary, overcoming immigrant poverty requires focused regulations, better resource accessibility, and a comprehension of their particular situation. Immigrants and society both gain when contributions are acknowledged and weaknesses are addressed.

Lyn's Rover – Robotics Project

Christopher Lyn
Faculty Mentor: Sarbani Banerjee, Computer Information Systems

As the world constantly evolves, technology must rapidly advance to keep up with it. To adapt, technologists must find ways they can advance their knowledge and understanding of technology. This project seeks to deepen the understanding of serial communication and robotics by building a rover and programming it to be remote controlled through the Raspberry Pi and Arduino. This project is inspired by the NASA rover project, in which a rover called Perseverance was built and launched to Mars in 2020 to explore and collect data for NASA . What this rover project seeks to do is evaluate and broaden the understanding of serial communication with a small rover and learn how data can be bounced back between the rover's Arduino and the computer. Additionally, this project will help improve coding skills and open doors for future robotics projects. The equipment needed for this project includes an Arduino and a Raspberry Pi to program the robot. A Bogie Runt Rover assembly kit is used to build the shell of the robot. Electrical motors connected to an h-bridge and a battery enable control over all the wheels on the rover. The specific skills needed to complete this project are knowledge

of circuitry, soldering, wiring, and knowledge of both python and Arduino code. The expected result of this project is a rover that can be remote controlled to move around the room. Communication will be evaluated by trying to control the robot's movements, meaning whether turns or accelerates.

Field and Laboratory Study of the Nature of the Migmatite Front at the Foot of Mount Washington, Gorham, New Hampshire

Dylan Maciejewski
Faculty Mentor: Gary Solar, Geosciences

I investigated and prosecuted the nature of a migmatite front between metasedimentary and migmatite rocks associated with the White Mountains of New Hampshire along the Peabody River in northern New Hampshire. These rocks were witness to the continent-continent collision that ultimately formed Pangaea. They were deep enough to partially melt on the high-T side of the front, but those rocks are in sharp contact with rocks that never reached those temperatures. Field work focused on field relations between stations (exposed outcrops) and field orientation of mineral patterns. The laboratory component focused on the microstructural and microtextural relations between outcrops. The field and laboratory work done for this research showed a difference in mineral composition and grain size from samples collected along the Peabody River, and in comparison, to the rock proximity to the migmatite front. The difference in mineral composition and grain size can help determine the factors of deformation experienced by these rocks and relate them to their proximity to the migmatite front.

Expression and Analysis of Gap Junction Proteins Associated with Skin Disease

Eliza Manhring, Nsona Mbambu
Faculty Mentor: I. Martha Skerrett, Biology

Mutations in at least three different gap junction proteins are associated with skin disease. To better understand how they mechanistically cause disease, it is possible to recreate mutations in the lab and study their function after expression in cells. In this case we focused on GJB4 which is associated with the skin disorder erythrokeratodermia variabilis (EKV) and codes for connexin30.3 (Cx30.3). We obtained this gene in a vector selected for its previous success inducing protein expression in Xenopus oocytes, a common system for analysis of membrane proteins. At least seven mutations were created and analyzed, all of which involved amino acid substitutions. Their locations will be highlighted in relation to connexin topology. Bioinformatic analysis also allowed us to determine if the substitutions altered the predicted membrane topology, and to determine if the altered amino acids were in highly conserved regions of the protein. To assess function, the Cx30.3 mutants were expressed in Xenopus oocytes. Assessment so far has focused on association with cell death, ability to mediate water movement across cell membranes, induction of ionic currents across oocyte membranes, and formation of gap junction channels.

The Heart and Soul of Irish Music

Mikayla Manke
Faculty Mentor: Tiffany Nicely, Music

The Irish call their instrumental music the heart and soul of their country. The spirit of instrumental music and its unique ornamentations and swing rhythms captures the distinctive sound of Irish traditional folk music. Folk songs are orally transmitted and rarely notated, especially because the style of Irish playing cannot be communicated through classical music notation. Being a great listener is the key to becoming an Irish musician. One can do this at local pub sessions, bringing along a fiddle, flute, accordion, uilleann pipes, guitar, or banjo, and waiting until being invited to play. Songs like the "Kesh Jig" are common tunes that you can learn by ear and observation at music sessions until you are familiar enough to perform it. My research focuses on Ireland's approach to music that emphasizes ingraining the culture and spirit of Ireland into yourself, and then carrying that with you so you can share the musical experience with others. The many forms of instrumental tunes, such as jigs, reels, polkas, and slides, were all created to accompany dance, and dance is still of great importance in non-formal home performances and festivals alike. These instrumental dance forms vary in rhythm, meter, and tempo, and can be regional or spread across Ireland. The emphasis on competition has grown in Ireland with a revival of their traditional music, but their music first began as a more private affair, meant to connect people to themselves and get them through the many hardships throughout their country's history.

Internet Store: A Software Development Project

Andriy Martynyshyn
Faculty Mentor: Sarbani Banerjee, Computer Information Systems

This research project centers on the design and development of an Internet Store, encompassing three integral components: the server, database and client. The server will facilitate seamless communication between the database and client, overseeing error detection and page transitions. The database will serve as a repository for vital user and product information, complete with attributes and images relevant to the online store. Users or shoppers will be required to establish an account on the website, while administrators are endowed with the capability to introduce diverse products, categories, and brands within the Internet store. This platform empowers users to manipulate their baskets, affording them the freedom to both add and remove items as they desire. Furthermore, users will gain insights into the aggregate rating attributed to specific items – a calculated average across all individual ratings for that item – alongside the opportunity to contribute their own assessments. In essence, this endeavor seeks to forge a comprehensive Internet Store solution, harmonizing database, server, and client functionalities to enhance user experiences, streamline administrative processes, and provide a dynamic online shopping ecosystem.

The Interplay of Housing Crisis and Poverty

Neahsia Maye
Faculty Mentor: Jessica Fitzpatrick, Social Work

My research question is: What does poverty and the housing crisis look like in Buffalo? The housing crisis hits the poorest Americans the hardest, making it tough for them to afford homes and improve their lives. This inequality underscores the need for fair housing policies to give everyone an equal shot at success. In order to learn what housing is about in Buffalo, I took a poll of ten people within Buffalo to determine if the housing crisis within Buffalo contributes to the prevalence of poverty. I also researched local reports. I found based on the poll that the housing does contribute to poverty within the U.S. and Buffalo. There are a lot of people who suffer from the high cost of housing with not enough support. There are plenty of resources in the community that will assist people with housing but there are certain limits that affect who gets helped. I hope that my poster demonstrates that this is a big issue within Buffalo and that we can soon take action to change this problem. I also hope different programs can be implemented to help those who fall slightly above the thresholds of the median income level so they are able to receive assistance.

Depression Within the Deaf Community

Robin McCarthy
Faculty Mentor: Dwight Hennessy, Psychology

Communication plays an imperative role in achieving accurate diagnoses and addressing mental health concerns. So what happens to the diagnoses and treatment process when there is a language barrier? For individuals from the deaf/hard-of-hearing (D/HH) community, barriers to attaining mental health services can include having a hearing, speaking clinician and a Deaf signing patient, attempting to interact with clinicians with little to no understanding of sign language or little knowledge or experience addressing the mental health concerns of D/HH individuals, which can impede accurate diagnosis, delayed or inappropriate treatment. Addressing these disparities will require a reconceptualization of how hearing clinicians interact with members of the D/HH community and how clinicians evaluate the lived experience of depression for D/HH individuals. The goal for this poster is to raise awareness and review the existing literature that studies depression within the D/HH community. It is important for clinicians to understand the effect of being deaf in a hearing world and what impact it has on a person's well-being, to offer comprehensive mental health resources for all.

Mental Health and Poverty in Buffalo

Olivia McKay
Faculty Mentor: Jessica Fitzpatrick, Social Work

My research question is: How does poverty affect mental health in Buffalo? People who live in poverty are more prone to mental and physical health issues. People who have incomes that fall below the poverty line reported many feelings of worry, nervousness, and anxiety at higher rates than the average person. To learn about poverty and mental health in Buffalo, I interviewed my mom who deals with people who have mental health issues. I also reviewed local reports and data. I expect to find that many people who are dealing with poverty also deal with mental health issues because of it. There are plenty of resources in the community that will link people with mental

health help. I hope my poster raises awareness and lets people know of the mental health resources that are available in Buffalo.

The Use of Percussion in Latino Music

Christian Medina
Faculty Mentor: Tiffany Nicely, Music

In my research, I explore and articulate the use of percussion throughout Latin American music. Through an exploration of instruments such as the congas, timbales, claves, and guiro. I discuss the importance of percussion in this music and its overall role, its influence on dance, as well as the use of brass. My work examines the virtuosity and technique that is required to play Latin percussion, as well as analyzing performances from master percussionists. My research investigates the beginnings of Latin percussion and shows the evolution of this music from its earliest origins to present day. I showcase some of the most prolific composers of Latin America and show the influence that their music has on Latino culture as a whole: specifically, I discuss Tito Puente, Ray Barretto, and Mongo Santamaria, showing how they set such a high standard for Latino percussion. Additionally, I touch on the influence of Latin American music on jazz, and the integration of cultures between African Americans and Latinos. This music has been in my life for as long as can I remember, and I wish to show how exciting and fiery Latino music can be.

Exploitation of Children in Media: An Analysis of Child Stars and Social Media Influencers

Karli Metros
Faculty Mentor: Ann Liao, Communication

The exploitation of children is not a new concept; we've seen it in many forms throughout history. There are more traditional avenues, such as child acting, or more modern platforms, like Youtube, Instagram, and Tik Tok. The conversation about morals has increased over the past few years, with more "family channels" and child stars. This research paper will explore the effects this has on the children and their family relationships with the lack of privacy they are given from a young age. To conduct this research, I will use framing as my theoretical framework and conduct a content analysis on children's influencers' videos. Looking at channels such as Ace Family, Ryans Toy Reviews, 8 Passenger, and more. While also analyzing studies, laws set into place to protect them, and other potential risks. We will delve into the issues of privacy, as mentioned earlier, psychological impacts, and the commercialization of childhood. The research will offer insights into the questions many have been asking for years and the complexities behind them.

Single Mothers in Buffalo

Sarah Moley
Faculty Mentor: Jessica Fitzpatrick, Social Work

My research question is: What do poverty and single mothers look like in Buffalo? Thirty-two percent of single mothers earn $40,000 or more a year. Additionally, 30% of single mothers are living in poverty. With the increases in prices due to the nation's inflation, single mothers are struggling to pay for formula, diapers and daycare. In 2021, the average cost of childcare for a 4-year-old was $15,371, with the cost rising over the last few years. In order to learn more about single mothers in poverty, I have interviewed my mom who still is a single mother. I know that the experience of being a single mother has caused her to endure some years in her life of poverty with raising two daughters here in Buffalo. Particularly in the Cheektowaga area code, 80% of single mothers live well below the poverty line. Additionally, 23% of these mothers have no job training or high school diploma. Though in New York, Buffalo is one of the best cities to live in as a single mother, there are only a few specific organizations in Buffalo to support single mothers and their families. I hope that my research creates more awareness and allows people to be more sensitive to the mothers and children of these homes.

W.A.N.D.A for the C.O.S.M.O.S

Samuel Molino, Jamaal Huff, Joseph Genau
Faculty Mentor: Ilya Y. Grinberg, Engineering Technology

The COSMOS is a six-wheeled robotic platform that can be wirelessly controlled and boasts a smart power system for continuous operation. The Wi-Fi project is very important to the overall mission of COSMOS, because currently there is no Wi-Fi communication to manually operate the robot. The wireless control system uses a voltage detection circuit, motor encoder, Arduino, and a Raspberry Pi Model 4 to collect and transmit all data wirelessly to the Graphic User Interface (GUI). To obtain the voltage from the 12-Volt batteries it is imperative to design a voltage detection circuit to step down the voltages to a 0-5-volt signal to provide inputs for the Arduino microcontroller. To obtain the wheel speed, a motor

encoder is needed to monitor the motor's shaft rotation. The COSMOS-3 team has previously designed a closed-loop speed control system that converts the frequency of the encoder's output to a voltage (F/V). This 0-5-volt signal is important to the design and is used as wheel speed input in RPM. Arduino has many general-purpose input/output (GPIO) pins so using an Arduino to gather the information to communicate with the Raspberry Pi through standard Firmata is important to this design. To communicate wirelessly to a personal computer (PC), the implementation of a Raspberry Pi is necessary. A Raspberry Pi communicates with other devices wirelessly. The Rover's battery voltage and wheel speed are displayed on a GUI as intended.

Untangling the Can of Worms: An Analysis of the I-490 Interchange in Rochester, NY

Declan Morrow
Faculty Mentor: Bridget Chesterton, History and Social Studies Education

Constructed in the 1960s and rebuilt in the 1980s, the I-490 Interchange east of Rochester, New York caused constant controversy for motorists who used the freeway to journey from the suburbs where they lived, to the downtown districts where they worked. This infamous interchange became known to Rochesterians as the "Can of Worms" because of its winding ramps and narrow roads that would leave those who traversed it confused and at the mercy of other drivers if they had not already experienced its design. To explain why this freeway was so unnavigable, those who have driven directly on its roads and voiced their dismay will be studied. Newspaper articles before and after the time of the Can of Worms' existence, blog posts, and comments from modern websites, photographs of the extent of the freeway, and even a satire of the Can of Worms printed in a contemporary newspaper will be included. Outside of these first-hand accounts of drivers of this freeway, reports and simulations conducted by engineers and Department of Transportation officials have also been included in this paper to provide logistical and structural information on the design of the freeway and how it contributed to its disdain. These testimonies and reports narrate that the Can of Worms was a freeway that was unsafe and uninviting to the public in the 1980s and contributed to an atmosphere of distrust toward the Department of Transportation to the extent that efforts to reform and reconstruct the freeway in the 1980s was resisted.

Quantitative Spatial Analysis of Urban Sprawl in Erie County

Cameron Murphy
Faculty Mentor: Tao Tang, Geosciences

Suburban sprawl can be defined as the spread of urbanized areas outward from existing urban centers, into the rural landscape. It is often associated with the growth of low-density residential developments and the extension of existing transportation and utility networks. One way to identify sprawl is to observe where the greatest concentrations of subdivided land are in a region, as this is a good indicator of where development is occurring. With this project, I was tasked by Erie County's Department of Environment and Planning to identify areas of new subdivisions from 2006 to present in Erie County as a means to track urban sprawl. In order to do this I had to compare tax parcel data from both 2006 and 2022, utilizing geoprocessing tools in ArcGIS Pro to identify parcel polygons that had been split up into smaller parcel subdivisions. From there I was able to conduct further analysis in ArcGIS Pro by conducting a Kernel Density Analysis, which identified municipalities in Erie County that had the greatest concentration of subdivided parcels between the given time periods. Results from this analysis indicate that there is significant sprawl in the region, with first and outer ring suburbs like the Towns of Orchard Park, Lancaster, Amherst, and Clarence having a greater density of subdivided parcels than other communities. The poster for this report will have maps created in ArcGIS Pro as well as data tables to display the analysis and results.

Senior Practicum: Town of Pendleton Comprehensive Plan

Cameron Murphy, Brennan Postich, Jacob Williams, Jonathan Worden, Samuel Semon, Peter Lukasiewicz
Faculty Mentor: Jason Knight, Political Science, Public Administration & Planning

A comprehensive plan expresses a community's future vision, and acts as a strategic roadmap for achieving that vision. Comprehensive plans are important tools for communities to guide future land development by identifying community issues, fostering economic development, and preserving natural resources through sustainable growth. Further, comprehensive plans provide communities with the opportunity to consider future implications of present-day decisions. This project tasked Buffalo State Urban and Regional Planning students with developing a new comprehensive plan

for the Town of Pendleton, a community of around 7,000 people in southern Niagara County. This plan replaced Pendleton's outdated 2008 Comprehensive Plan. In addition to drafting this comprehensive plan, students also facilitated a public workshop in Pendleton to gather input from Town residents. Students created graphics displaying U.S. Census Data, ArcGIS Pro Maps, future recommendations for the Town of Pendleton, and will present key findings discovered through research of the Town.

Indigenous Culture Lost – Now Expressed Today

Holly Nagel, Jolene Brown, Brian Bussard
Faculty Mentor: Arlesa Shephard, Fashion and Textile Technology

The purpose of this research is to explore the lasting effects of colonialism on indigenous American dress as well as fashion in the 20th and 21st century. Our research narrows in on two spirited people within the Native American communities. Two spirited people can be described as individuals from indigenous cultures who express and celebrate gender identities that deviate from the western conceptualization of gender. Today, two spirited people are members of the LGBTQIA+ community. After decades of widespread colonialism and forced conversion, much of the history and culture of the two spirited people has been erased. While physical evidence of this history may be lost, two spirited people carry on their expression of gender to this day through spoken word, current events and events within the tribes, and dress. During the February 2024 New York Fashion Week, a Native American and two spirited designer by the name of Scott Wabano shared their collection and story on the runway. This designer and their collection helped raise awareness for the LGBTQIA+ community within indigenous culture and support the push for social justice for these individuals. Our research methods include anthropological sources, museums, the American Indian Art Institute (AIAI), along with articles and books that strengthen the rich history and way of life that has been silenced over time. While unwanted European influence had devastating impacts on Native American culture, the culture and values of the tribes lives on, specially through modern indigenous self-expression and dress that commemorates and emphasize tradition.

Penetrating the Layers: Exploiting Vulnerabilities through Ethical Hacking

Tristan Neamon
Faculty Mentor: Sarbani Banerjee, Computer Information Systems

This research delves into the realm of penetration testing, specifically focusing on the methodologies employed to identify and exploit vulnerabilities within computer systems. The objective is to investigate the ethical hacking techniques and their efforts in fortifying cybersecurity measures. Within the grand scheme of defending against cyber threats and the critical need for robust defenses, this study seeks to illuminate the process of penetration testing as a proactive approach to identifying and mitigating potential security risks. Penetration testing encompasses a multifaceted approach, encompassing reconnaissance, scanning and ennumeration, exploitation, and post-exploitation techniques. Leveraging industry-standard tools and frameworks such as Metasploit, Nmap, and Wireshark, this research is to simulate real-world cyber attacks in a controlled and ethical manner. Preliminary findings suggest the presence of various vulnerabilities across different network configurations and software environments. Through analysis and exploitation, the research aims to gain root access to target machines, thereby demonstrating the potential consequences of unchecked security flaws. Anticipated results include the successful compromise of target systems, highlighting the importance of proactive security measures and the continual refinement of defensive strategies. Through this research you can expect to gain insights into the intricacies of penetration testing and its role in improving cyber resilience and awareness in an increasingly digital landscape.

Connie

Collin O'Brien
Faculty Mentor: Dorothea Braemer, Communication

Connie is a 30-minute documentary about the life and work of 91-year-old activist, women's advocate, and inspirational leader Connie Eve. The story unfolds in the past and the present. Connie's past comes to life through interviews, archival footage and animation. The present is shown through observational footage, showcasing her busy life as a community leader, women's advocate, family matron, and friend. The subject matter of this film is the inspirational power of an individual life and the power of collective action, especially of women. The film's primary questions are: What does it take to effect positive social change? How did Connie Eve accomplish

what she did? How much does one's background affect one's vision for the future? On a larger scale, ***Connie*** explores the idea of collective action and African-American cultural heritage.

Gentrification In Buffalo

Mckenzie Octave
Faculty Mentor: Jessica Fitzpatrick, Social Work

My research question is: What does poverty and gentrification look like in Buffalo? Gentrification is the process whereby the character of a poor urban area is changed by wealthier people moving in, improving housing, and attracting new businesses.Typically displacing current inhabitants in the process. Since the 2000 Census, roughly about 8 percent of all neighborhoods experienced gentrification. Gentrification normally occurs in places where the housing stock is much more affordable than other places in the same city where something has happened to change perception of the value of that location. A core driver of gentrification in the United States has been the strong and growing demand for central city living by more affluent households. The minority communities are affected the most, leaving residents with fewer options of neighborhoods they can move to, compared to their white counterparts. In order to learn about gentrification in Buffalo, I took photographs in North Buffalo, right across the street from the Buffalo State University, and on Grant and Amherst. I also reviewed local statistics. I expect to find that like the rest of the US, most people in Buffalo are heavily affected by gentrification and there is not too much light that is being shared on the matter. There are plenty of resources in the community that will link people to seek some assistance. I hope this raises more awareness and that some form of action will be put into place to address this issue to help the individuals affected.

Poverty Among Hispanic Community

Jennifer Ortiz
Faculty Mentor: Jessica Fitzpatrick, Social Work

My research question is: How does poverty impact substance uses and mental health within Buffalo's Hispanic community? According to SAMSHA's national data, 15% of Hispanics struggle with a substance abuse disorder and 36% have a mental health diagnosis. In order to learn about substance abuse and mental health among Hispanic minorities in Buffalo. I Interviewed a 42-year-old Hispanic male currently homeless with dual diagnosis about his current barriers in resources and lack of social workers that speak Spanish. Among the social workers that are bi-lingual, few specialize in addiction and mental health here in WNY, and they face barriers providing accessible treatment to the Hispanic population; there are agencies that provide treatment that can be useful for clients who are willing to use an interpreter or language line. Poverty and lack of communication between providers and resources have been impacting Hispanic minorities seeking treatment or completing treatment successfully. I hope that my poster project brings awareness to this issue and also raises the awareness of others treatment facilities to provide more advocacy and trainings that can offer help to facilitate support for staff, providers and families that are impacted by substance abuse and mental health in the Hispanics communities in WNY.

Comparison of Ingredients in Brand-Name and Generic OTC Medications via Chemical Analysis

Matthew Ostrowski
Faculty Mentor: Jamie Kim, Chemistry

Throughout the United States, over-the-counter (OTC) medications are used daily to treat a wide range of symptoms and illnesses. Pharmacies and various chain supermarkets sell a wide selection of these medications. When selecting a medication, one must choose between brand-name and generic medications. Though the names are different, generic and brand-name drugs work the same. According to the Food and Drug Administration (FDA), generic drugs are just as effective as their branded counterparts and offer much less cost. However, some consumers prefer brand-name products over generic ones although the prices for generic medications are much cheaper. They believe brand-name medications are more effective and contain different active ingredients. To test this question, we investigated the presence of the active ingredient and its relative abundance in several brands of painkillers and antifungal creams. These include Tylenol and Lamisil (brand-name medications) and generic name medications from Walgreen's, CVS, and Walmart. Chemical analysis of these medications was conducted via Fourier-transform infrared spectroscopy (FTIR), gas chromatography-mass spectrometry (GC-MS), and high-performance liquid chromatography (HPLC). Our preliminary results showed that there is little to no difference in the active ingredient and other components between brand-name and generic medications used in this work. In this presentation, details of our sample preparation and results of chemical analysis are presented..

Mozart's Greatest Opera?

Abigail Overacker
Faculty Mentor: Carolyn Guzski, Music

Wolfgang Amadeus Mozart (1756-1791) was one of the greatest musical minds to ever walk the earth, even if it was only for a brief time. In his last stage of his life, Mozart was able to create one of the most famous operas in music history, ***Le Nozze di Figaro*** [The Marriage of Figaro] (1786). Mozart completed this opera while working with librettist Lorenzo Da Ponte (1749-1838), but also while composing three new piano concertos for his own performing use as one of the top keyboard virtuosos of his day. Mozart took this opportunity to compose ***Figaro*** by making many contributions to the poetic context while remaining in complete control of the creative decisions in the spirit of both the dramatic and rhythmic flow of the musical score. ***Figaro*** is one of Mozart's best-known operas because of how it changed the narrative on stage performances during the 18th century. ***Le Nozze di Figaro*** differs from operas typical of the Classical era because Mozart had the sensational ability to emphasize emotion through the scoring of individual character development, along with ensemble action with precise musical elements, such as orchestral ***timbre*** and balanced melodies. ***Figaro*** is a comedic ***opera buffa***, the first genre to add comedy to dramatic operas. ***Opera buffa*** became most popular in Italy during the 18th century and thereafter spread across Europe. Mozart's artistic contributions left an indelible mark on the future of music by breaking many boundaries.

How Much do You Really Know about Poverty and Health?

Danielle Palaszewski
Faculty Mentor: Jessica Fitzpatrick, Social Work

My research question is: What does poverty and health look like in Buffalo? As of 2020, it was estimated that 11.4% of the population or about 37 million Americans lived in poverty according to the United States Census Bureau. Since COVID, the poverty rate has only grown, not just in Buffalo but globally. In order to learn what poverty and health is like in Buffalo, I took a poll of 10 people who live in Buffalo. I also researched local data and articles. I expect to find that like the rest of the United States, most people in Buffalo are struggling with health issues related to the inequailty of health care and inability to access those needed resources. The people that struggle with poverty and health are non-white and ethnic/ immigrants with the higher percentage being women. The age group affected the most is between the ages of 20-64 years old. The research I've done will reflect the severity of the link between poor health and low income. Without having the proper knowledge, the outcome will not change. For instance, there are plenty of resources in the community that will link people with health centers. I hope this raises more awareness of this issue and let people know that resources are available.

Land Use and Land Cover Around Lake Naivasha, Kenya

Madison Palmatier
Faculty Mentor: Tao Tang, Geosciences

While studying abroad in Kenya, Africa last summer, my eyes were opened to several different environmental issues. One of these issues stems from Lake Naivasha, which is a lake that the local residents depend on for clean water. Meanwhile, the country depends on the lake for economic reasons. Lake Naivasha draws in tourism for the incredible wildlife that can be found here, including the wildlife found on Crescent Island. Recently Lake Naivasha has been experiencing a drastic change in water levels, most of which can be tied to the flower industry which is booming in Kenya, more specifically around Lake Naivasha. In order to slow or potentially stop the water loss from Lake Naivasha, researchers need to know the cause and the concentration of the problem must be known. In order to investigate these pollution sources and water take away from the lake, I used supervised classification of Landsat 8 satellite images to classify different land uses around the lake. Beyond this I read some academic journals from others who are concerned about the water levels in Lake Naivasha, in order to get as much information as possible regarding Kenyan flower farms. My hope for this project was to put the intensive flower farming problems that Kenya is experiencing into visual terms, in order to bring to light just how bad of a toll the environment is facing due to this booming industry. If nothing is done the overall economy, local residents, and wildlife will all suffer.

Hiram Lake Water Quality Assessment

Allison Panek
Faculty Mentor: Stephen Vermette, Geography

Hiram Lake Club is a private community located in the Town of Arcade, NY. Cottages surround three manmade lakes—Acacia, Hiram, and Solomon. The Hiram Lake Club and its Conservation Committee were interested in the water quality of the three lakes. A partnership was established with Buffalo State University to allow water testing to be done on the Hiram Lake property over the months of June, July, and August 2023. The research conducted over the summer provided a comprehensive water quality assessment of the lakes. Using Geographic Information Systems (GIS), a sub watershed boundary was delineated and sampling sites were pinpointed for each lake. The sampling over the summer was conducted off of residential docks and in the middle of the lakes. Eleven water quality parameters were measured, such as dissolved oxygen, temperature, acidity, dissolved solids, suspended solids, nitrate, phosphate, hardness, secchi depth, E. coli, and BOD5. The data was analyzed and visually compiled into several graphs. Overall, the water quality of the lakes was found to be healthy for all parameters measured- suitable for recreational activities. Spring fed and a restricted watershed reduces pollutant impacts from outside the Hiram Lake community, and there appears no evidence of leaching from septic tanks in the community.

The Role of Nicotine on Trial-and-Error Learning and Short-Term Memory with Nicotine Using College Students

Lucas Patton
Faculty Mentor: Pamela Schuetze-Pizarro, Psychology

Findings regarding the impact of nicotine on cognition differ widely in research using human and rodent models. Results from rodent and human research differ with rodent models showing that nicotine use mostly inhibits cognition and human research reporting inconsistent results. Thus, the purpose of this double-blind study was to investigate the effects of nicotine on trial-and-error learning and short-term memory among young-adult nicotine users. A total of 50 nicotine-using students from Buffalo State University were randomly assigned to either ingest nicotine-containing gum (2mg) or a regular piece of gum. We hypothesized that participants who ingested 2mg of nicotine would have better (1) short-term memory and (2) more efficient trial-and-error learning than participants assigned the placebo condition. Participants completed the Four Word Short-Term Memory Test to provide short-term memory scores and the Groton Maze Learning Test to provide trial and error learning scores. Analyses of Covariance (ANCOVA) with participant age as the covariate was used to determine the influence of nicotine use on short-term memory and trial-and-error learning. The independent variables were the experimental group (nicotine) and control group (regular gum). The dependent variables were the number of words correctly recited in three trials, average of words recited, errors made in mazes 1 and 5, and time taken to complete the mazes 1 and 5. Contrary to our hypotheses, there was no significant difference between groups for any of the measures. Future research should improve upon the present study by increasing the time in the lab and dosage of nicotine.

Veterans and Mental Health

Morgan Payan
Faculty Mentor: Jessica Fitzpatrick, Social Work

My research question is: What do poverty and veterans receiving mental health care look like in Buffalo? A lot of veterans who have gotten deployed have a higher rate of developing PTSD being deployed than non-deployed veterans. The rate of suicides rose from 81 per day in 2001 to 121 in 2020. I interviewed a friend of mine who went into the Army right after high school and is recently starting college after being out of the service. I have also read local reports about veterans in Buffalo who have been homeless and recently received housing at a place in Fredonia called Range Ranch. This is a retreat for veterans who have gone through traumatic experiences. Range Ranch is owned and operated by three brothers who are veterans themselves. I expect to find that most veterans who come out of the service young or old will have mental health problems. With the system being set up to how it is, most people will have a hard time receiving the care that they need. Many of those in need will not admit to themselves that they need mental health services and suffer alone. Like the rest of the United States, most veterans in Buffalo also suffer with high suicide rates. There are plenty of resources in the community that link veterans with mental health resources. I hope that the information from this poster will raise awareness and have people check up on their military friends and help and lend an ear to anyone that needs it.

The Power of Expectations: An Investigation about the Effects of Expectations Placed Upon Former K–16 Math Students by School Personnel

Maria Phelps

Faculty Mentor: Christopher Shively, Elementary Education, Literacy, and Educational Leadership

Xiiem (2018) asserts that "Embedding and remembering stories through the emotions–knowing them intimately–establishes a seamless connection to one's memory." A student's assessment of their experiences affects both their environment and their self-beliefs, which, in turn, influences their future performances. These self-beliefs are often called self-efficacy. Self-efficacy refers to the belief that one has the ability to manage a prospective situation, perform a certain task, or reach a goal (McTigue & Liew, 2011). The phenomenon of low expectations exists when school leaders make decisions about a student's capabilities and place similar students in lower-track classrooms because they share one or more of the following traits: (1.) perform poorly on standardized tests, (2.) read below grade level, and (3.) are known to exhibit antisocial behaviors toward school authorities (Yerrick et al., 2011). Data was collected from seven Teacher Candidates (TCs) and was analyzed using a narrative research procedure described by Ollerenshaw & Creswell (2002). Based on the TCs, two themes emerged: (1) Every opportunity counts and teachers' actions, no matter how small, leave lasting impacts on children and their belief systems; and (2) Teachers need to be careful to leave a positive and motivational impact on all students.

Poverty and Homelessness in Buffalo

Aaliyah Philip-Graham

Faculty Mentor: Jessica Fitzpatrick, Social Work

Homelessness is a major problem in the Buffalo area and is a symptom of poverty. In Erie County, high rent, lead poisoning, asthma, house repair problems, and fires contribute to homelessness, which leads to devastating outcomes. An estimated 5,455 people experienced homelessness in 2015. In 2016, that number rose almost ten percent to 5,953. Roughly 16 percent of Buffalo Public School students have experienced homelessness. I have obtained this information through journal articles related to this topic and through local news stories and reports. Through my research, I have found that more than half of Buffalo households (55 percent) cannot afford rent. According to the federal definition, affordability means paying less than 30 percent of income toward gross rent, which includes utilities. Through my research, I have concluded that Buffalo's low-income residents suffer from a host of health problems exacerbated by the environmental problems in their housing and their overall environment. Asthma, lead poisoning, house repair problems, fires, and high rent can lead to homelessness which can have tremendous lifelong effects. People need help to survive with the basic need of shelter. With my poster, you can expect to find more in-depth details about why homelessness is so common in Buffalo because of these factors.

Assessing Recruitment Strategies for Families with Young Children

Breonna Pierce

Faculty Mentor: Kimberly Kamper DeMarco, Psychology

Recruitment can be difficult for studies involving children because recruitment involves not only the child, but the parent as well. Some challenges that researchers face while recruiting children is the difficulty parents have in finding the time to travel to a study location and taking the time to complete numerous questionnaires. Parents may not have transportation while others may not want their child to be involve in certain studies. Previous studies have found that having effective communication and community engagement can help with recruitment. For the current study, families with children between the ages of three to five are currently being recruited for a study on the development of attributions about social behavior. We will be examining effective recruitment strategies. Recruitment has primarily taken place via flyers and word of mouth. Involvement in the study last for approximately 45 minutes and takes place on the Buffalo State University campus. Parents are asked to complete several questionnaires both online and on paper while the children are asked to complete games and tasks assessing their understanding of social relationships, self-regulation, and their emotions. Currently 30 children have participated in the study. To better assess the effectiveness of recruitment strategies, we will examine how participants were recruited for the current study and propose additional recruitment strategies to enhance future work.

Sucker Savior: An Attempt to Curtail Adolescent Gambling Using Python

Jordan Piershalski
Faculty Mentor: Sarbani Banerjee, Computer Information Systems

The proposed research project is intended to serve as an aid and possible deterrent for adolescent sports bettors who may not fully understand the risks associated with placing a given wager. Due to the Supreme Court's revocation of the Professional and Amateur Sports Protection act, sports betting is now legal in over 30 states ; the revenue generated by casinos and mobile game apps has increased in kind, resulting in $54.93 billion dollars of revenue in the first 11 months of 2022. Adolescents have distinguished themselves as a demographic of concern and fall prey to problem sports betting due to cognitive immaturities such as lack of risk aversion and inhibition . The proposed project utilizes Python libraries such as: Beautiful Soup to scrape odds data as they are populated on the internet, NumPy to compute the Break-Even Percentage (BEP), Hold Percentage (HP), and Estimated Value (EV) and a novel composite measure Bet Assurance Rating (BAR) of the bets being offered, and lastly Matplotlib to visualize the data for the user . These computed values and their visualization will provide the user a quantitative foundation upon which they will be able to distinguish a somewhat probable wager from a predatory wager for the user.

Food Insecurity in Buffalo

Caroline Pirrone
Faculty Mentor: Jessica Fitzpatrick, Social Work

My research question is: What does poverty and food insecurity look like in Buffalo? There are well over 11.2 million children (about twice the population of Arizona) and families in the United States that are struggling with food insecurity. Struggling with food insecurity is a serious issue that causes so much harm it causes children to grow up malnourished and/or with unhealthy eating habits and puts a tremendous amount of pressure on the parents. In order to learn about what food insecurity is like in Buffalo, I interviewed Annie Todd, who works as a Community Impact Coordinator for the Mobile Safety Net Team at the Oishei Foundation in Buffalo. I also researched local reports and statistics. I expect to find that like the rest of the US, most people in Buffalo experience food insecurity. There are plenty of resources in the community that will link people with food insecurity. I hope my poster helps teach and helps others understand how much of an issue food insecurity is.

Medical Transitioning and Poverty

Wilbur Plunkett
Faculty Mentor: Jessica Fitzpatrick, Social Work

Poverty has a direct effect on access to medical care which is limited when people do not have the ability to pay for that medical care. The United States is one of the only countries of the developed world that doesn't have universal healthcare. Gender affirming care varies between private insurance, Medicaid, and the state the individual is in. What this research is most interested in is the coverage that Medicaid covers. Gender affirming care is important to the physical and mental well-being of a transgender individual and it is found that inability to get care can lead to a higher risk of depression, self-harm, and suicide. Depending on the state, Medicaid can cover a variety of gender affirming services such as in New York, where Medicaid covers surgery, HRT, Voice Therapy and Behavioral Health services. However, there are states where Medicaid doesn't cover these services and since a little over of a quarter of the transgender population lives in poverty, this is yet another obstacle that could improve their quality of life. This project will look at the comparison of New York and another state, like Texas, which provides no gender affirming services under Medicaid and the correlation between Medicaid coverage and reported well-being of transgender youth.

Today, 54 Years Ago: Predictions From "A Dialectic of Sex"

Wilbur Plunkett
Faculty Mentor: Staci Newmahr, Sociology

"The Dialectic of Sex" by Shulamith Firestone is an important feminist work, ahead of the time it was written in. This research aims to discuss whether the predictions and the logic Firestone was working with in the 1970s is still relevant today. Firestone builds her argument examining cultural divisionism based on sex and oppression, especially regarding the development of the nuclear family as it relies heavily on gender roles to function. Built on the oppression of women and children, this reflects in our culture as it is seen through a male bias. If the exploitation of labor under capitalism and the need for natural reproduction was eliminated, Firestone outlines how the family unit would become irrelevant and free both women and children. The alternatives to marriage, single professions, and co-habitation (couples who live together without marrying) are becoming much more prevalent. Much

of the younger generations are refusing marriage, refusing to have children or both. This shift is reflective of not only the economic state but of the conditions that Firestone argues are finally set in favor of a feminist revolution. As it continues to become more economically difficult to create a traditional nuclear family, the idea of family will become more flexible and diverse. When the pressure of the reproduction of the species is lifted from women and the need to work to live is eliminated by cybernetics, Firestone's feminist revolution will be realized.

Pipeline Program

Heather Polowy
Faculty Mentor: Corrine Kindzierski, Elementary Education, Literacy and Educational Leadership

My Independent Study covers the journey of my time during the Pipeline Program. It will include discussing what the program consisted of, my personal reflection of my journey, a small focus group interview of other members of the program of their personal reflections, a "take away" lesson, and suggestions for future cohorts.

Land Use in Lackawanna: Supervised Classification in Action

Brennan Postich
Faculty Mentor: Tao Tang, Geosciences

Urban spaces are constantly changing, demanding different methods of analysis to be understood. The City of Lackawanna lacks a planning department, and many documents (including its land use map) are outdated. Remote sensing techniques can provide timely and substantive data for municipalities to analyze. Supervised classification, a method of classifying objects on the Earth's surface, allows researchers to analyze past and present conditions through class categories. Supervised classification provides substantive data while also being easy interpret and analyze. This research project found a significant increase in the amount of land devoted to industrial uses inside Lackawanna from 2002 to 2021. Further, this piece explores supervised classification's flaws, limitations, and opportunities in analyzing land use and land cover.

Improving Schools with Research, Not Convenience

Sarah Pratt
Faculty Mentor: Keli Garas-York, Elementary Education, Literacy, and Educational Leadership

I would like to look at the reason school schedules are the way that they are as well as how they could be improved. I know the foundation of schools is still a prevalent factor in how schedules work today, but is it really beneficial? There is so much research on how to teach students proficiently, keep teachers happy, and improve results of academics through timing, but it is not being implemented in schools for financial, convenience, or duration reasons. I would like to research how school schedules can be developed to positively impact everyone involved. This project is significant because it can open opportunities for changing how school systems run based on studies regarding schedules, timing, and duration. It may be shared with parents and elected officials to respond to the current and changing school schedules to benefit those involved in education.

Rei Kawakubo in the 90s: Embracing Diversity and Challenging Norms in the Industry

Sadie Pratt-Filker, Zii Spencer, Naylani Stokes, TruQueen Webb
Faculty Mentor: Arlesa Shephard, Fashion and Textile Technology

The purpose of this topic is to understand Rei Kawakubo's influence beyond fashion design and her profound impact on the fashion world. Understanding Rei Kawakubo's work means recognizing how her work changes perceptions, biases, and creates a more inclusive and diverse industry. She is a well-known Japanese fashion designer who created an innovative company Comme des Garçons, which means "like boys" in French, in 1969. Kawakubo, who was born in Tokyo in 1942, is recognized for her avant-garde and rebellious approach to fashion design, which questions conventional ideas of form, beauty, and clothing construction. To better understand Kawakubo in the context of social justice, a literature review of books and other academic sources was done as part of the research methodology. Kawakubo transformed the fashion industry with her ground-breaking designs that questioned conventional ideas of what constitutes beauty and appropriate clothing fit. By pushing the boundaries of fashion with her collections, which were marked by deconstruction, asymmetry,

and unusual designs, Rei Kawakubo inspired designers and set trends that lasted for decades. Rei Kawakubo has transformed the fashion industry by questioning traditional ideas of beauty and style with her avant-garde designs. Since her creations capture the shifting attitudes and values of modern society, Kawakubo's influence transcends the realm of fashion and into larger cultural and historical contexts. Rei Kawakubo's contributions are essentially much more than just fashion; they are a deep investigation of identity, creativity, and the human condition.

Transformer Trainer

Christian Prem, Daemani Devonshire, Caleb Saxbury, Joshua Gagliardi
Faculty Mentor: Ilya Y. Grinberg, Engineering Technology

The goal of this project is to create a Transformer Trainer that is one-of-a-kind tool used to teach and train electricians and linemen on how to measure and record 3-phase voltages for various types of single-phase transformer connections. The trainer is able to measure 3-phase voltages in a variety of configurations and display both the primary voltages, secondary voltages, and phase shifts on a single screen. The device reads the voltage output and phase shifts of the connected transformers in any configuration used. The transformer trainer uses an op-amp circuit connected to a microcontroller to read the results. The microcontroller is programmed to process information from op-amps. The unit measurs voltage from each phase, the phase angles, and displays the data as a phasor diagram. Through the software developed required data are recorded and sent to a Raspberry Pi microcontroller connected to LCD screen. Displayed phasor diagrams will show whether the transformers are properly connected.

Quantitative Analysis of Benzene, Toluene, Ethylbenzene, Xylene (BTEX) in Gasoline using FT-IR, Raman and GC-MS

Jada Price, Nevaeh Herd
Faculty Mentor: Jinseok Heo, Chemistry

BTEX refers to a hydrocarbon mixture containing benzene, ethyl benzene, toluene, and the three xylene isomers (o-, m-, and p-) commonly found in gasoline. Exposure to these compounds can have numerous negative effects on human health. The United States Environmental Protection Agency (EPA) limits the composition of BTEX in gasoline to no more than 0.62%. Quantitatively determining BTEX in gasoline has been challenging due to its typical composition of about 150 different hydrocarbons. Various instrumentation techniques, such as IR Spectroscopy, Raman Spectroscopy, and Gas Chromatography-Mass Spectrometry, are used for BTEX composition analysis. Each technique has its own advantages and disadvantages that affect the success of quantifying BTEX. To determine the reliability of each instrument in properly analyzing BTEX, standard solutions containing a range of concentrations of each compound and gasoline samples were prepared and analyzed using each approach. This presentation will compare the results of each analytical technique, discuss their reliabilities, and suggest protocols to analyze BTEX under different situations.

The Evolution of Gospel Music

Orianna Pritchett
Faculty Mentor: Tiffany Nicely, Music

Over the last 70 years, Gospel music has moved from the containment of church buildings to radio stations, Grammy awards, and worldwide tours. With roots spanning from ancient Africa to late 1900s, "Juju" music in Nigeria, the introduction of white, Judeo-Christian practices, the spirituals created during slavery in America, the emergence of Jazz and Blues along with prominent figures such as Aretha Franklin and Mahalia Jackson, Gospel music has taken quite the journey to evolve into what we hear now. Modern musicians and singers such as Eddie James, Tye Tribbett and Kirk Franklin, who began in these churches, have now found themselves in the secular, public eye whether through radio stations, worldwide touring, public interviews, creating orchestrations similar to the Trans-Siberian orchestra, or collaborating with artists outside of the Christian tradition. With the way that Gospel has moved forward, one might wonder: How exactly did this music evolve from its ancient roots of polyrhythm being at the center to a complex, diverse music? This is the question I will investigate through observation of musical performances, harmonic contexts, interviews, scholarly journal articles, books, and musical transcriptions.

Perceptions of and Reactions to Workplace Bullying

Danielle Ralph
Faculty Mentor: Eyad Naseralla, Psychology

Workplace bullying has been identified as a widespread issue since the early 1990s (Namie, 2003) and is associated with negative outcomes for the victims, bystanders, and the organization as a whole (Samnani & Singh, 2016). In a 2021 survey, 30 percent of respondents reported being bullied in the workplace at some point, and a further 19 percent reported witnessing bullying (Workplace Bullying Institute, 2021). Combined, almost half of all respondents have been affected by workplace bullying, which extrapolates to nearly 80 million Americans. According to the study, bullying cases end for a variety of reasons. The most prevalent cause is the removal of the victim from their position, either because they voluntarily resigned or because their employer terminated or transferred them to a different position or location (Workplace Bullying Institute, 2021). About two-thirds of bullying cases end this way, with most or all of the negative effects falling on the victim. Only a quarter of cases ended due to negative consequences for the bully. Interestingly, ten percent of cases ended due to positive actions by either the employer or the target's coworkers. The current study aims to study factors that may contribute to individuals' willingness to intervene and assist a victim of workplace bullying. This project will examine elements such as situational factors, loci of control, and belief in a just world to determine which are associated with anti-bullying behavior. The study will also look at differences in these elements between workers at different stages of their careers.

Working University Students and Workplace Bullying

Danielle Ralph
Faculty Mentor: Robert Delprino, Psychology

Workplace bullying has been an issue for many years (Namie, 2003), and much research has focused on the perpetrators and victims of workplace bullying. However, little research has been conducted to examine witnesses' perceptions and willingness to intervene. The current study investigated how employees at the early stage of their work life perceive workplace bullying and the likelihood that they would intervene on behalf of workplace bullying victims. In general, witnesses are most likely to intervene when they feel that they have the skills needed to do so. The likelihood of witness intervention is also influenced by their belief that the world is not a just place and their tendency to blame society for problems rather than victims. The witnesses most likely to intervene were also likely to believe that bullying is a problem and should be addressed. Because workplace bullying is widespread (Workplace Bullying Institute, 2021), organizations must take action to reduce its prevalence. However, they must also consider the values of different age cohorts. The findings of the current suggest that organizations should place greater emphasis on educating early-career employees about the ramifications of workplace bullying and on teaching employees the skills needed to intervene. Future research will be conducted on older age cohorts to determine their perceptions of and reactions to workplace bullying.

Historical Contributions to the Caribbean Carnival and Social Impacts

Amy Ramos, Angie Deleon, Linin Lu
Faculty Mentor: Arlesa Shephard, Fashion and Textile Technology

In this study, our goal is to introduce the cultural influences and traditions that impacted Caribbean Carnival dress and shed light on the social justice contributions of Carnival. Cultural representation at Caribbean Carnival serves as a vibrant tapestry reflecting the diverse histories, traditions, and identities embedded in the region. Central to this representation is the dynamic fusion of African, Indigenous, and European which has a historical context of colonization, slavery, and cultural syncretism. Fair labor practices in Caribbean Carnival, while often overlooked, play a crucial role in ensuring the well-being and rights of those involved in the festival. Acknowledging the skills of craftsmen who make costumes and props, through equitable payment ensures the sustainability of traditional craftsmanship. Our methods of gathering information include using the National Archives and other online databases. Caribbean Carnival has relevance in that fashion is used to tell the story of their ancestors, history, and how that contributed to who we are today. Not to mention that world history, including the Transatlantic Slave Trade and the Haitian Revolution, reflects on Caribbean cultural representation because of what each Caribbean country has had to overcome for their independence and is a main takeaway from our research. The struggles for independence and liberation from colonial rule stand as poignant reminders of the resilience and strength of Caribbean peoples. Delving into these historical narratives unveils the rich tapestry of traditions, languages, music, and art that define Caribbean

culture, serving as a testament to the enduring spirit of its inhabitants.

Inflation in Buffalo, NY

Terell Ray
Faculty Mentor: Jessica Fitzpatrick, Social Work

My research question is: What does poverty and homelessness look like in Buffalo, New York? At the end of 2023, approximately 653,104 people across the U.S had experienced being homeless, making it about a 12% increase over 2022. In 2023, the cost of living peaked at its all time highest causing many individuals' rent costs to rise and become difficult to pay. Individuals who live in New York overall faced being charged hundreds more in rent. Not only did the cost of rent increase, but so did basic necessities such as groceries, gas, water, and even child care. In order to learn more about individuals who experience some type of economic hardship due to inflation in Buffalo, I completed interviews of individuals on Buffalo State University campus who have experienced some form of economic hardship in the past year due to inflation. I also researched about homelessness around the Buffalo area. I found that like the rest of the US, most people in Buffalo experience homelessness due to the cost of basic necessities rising and making it hard to live on a day to day basis. There are plenty of homeless resources in the community that will link individuals with shelter and food. I hope that this poster raises more awareness about homelessness.

Effect of Eating Before a Stressor on the Stress Response

Cecelia Redding, Tamari-Rose Love
Faculty Mentor: Naomi McKay, Psychology

Previous studies looked at how eating unhealthy foods would reduce stress. In those studies the researchers found that unhealthy foods consumed did not reduce psychophysiological stress or anxiety compared to healthy foods or either reading or not reading a magazine. A main problem with these studies was that participants were not able to choose what food they were going to eat. The current study will tell us if allowing the participants to choose the food they consume will decrease their stress. We predicted that the participants who have food before a stressor will exhibit less stress than the participants who have food after a stressor. Participants came to the lab between 12:00 and 4:00 pm. Participants were informed that they were going to go through a mock job interview (used as a stressor). They were given 10 minutes to prepare a speech. This was when snacks were brought out for half the participants. Whereas the other half of participants received the snacks after the stressor. Emotional and physiological reactions to stress were measured throughout. It was expected that participants in this study would have less of a reaction to stress when they had food before the stressor because they were able to choose the food they consumed. However, results showed that there was no difference in stress response between participants who ate before the stress and those who did not. Therefore, eating before a stressor does not seem to decrease emotional or physiological stress during a stressor.

Public Policy and Immigrant Poverty in Buffalo

Shanae Redwood-Polino
Faculty Mentor: Jessica Fitzpatrick, Social Work

This study examines the relationship between immigration policies and poverty levels among immigrant populations in the United States and how these compare to native populations. Immigration policies play a significant role in shaping the socioeconomic landscape for immigrant populations. The primary research question is: How do immigration policies affect poverty levels among immigrant populations compared to native populations with a focus on those in Buffalo? This is pertinent given the dramatic shifts in U.S. immigration policies and their potential impacts on immigrant economic well-being. The proposal will involve reviewing existing literature on the relationship between immigration policies and poverty in the Buffalo area. It will consider studies that have investigated the socioeconomic outcomes of policies like DACA, in-state tuition laws for undocumented students, and the effects of legal status changes on immigrant well-being. The research is expected to find a significant correlation between American immigration policies and higher rates of immigrant poverty and lower enrollment in educational institutions compared to native populations. The population of immigrants and refugees in Buffalo, New York, has significantly contributed to the city's growth, particularly over the last 10-15 years and this research will underscore the critical need to understand the nuanced impacts of immigration policies on different immigrant groups and the importance of designing policies that address the multifaceted nature of immigrant poverty.

Indicators of Burnout in College Students

Shanae Redwood-Polino, Michelle Colangelo, Catherine Sarich
Faculty Mentor: Kimberly Kamper-DeMarco, Psychology

Burnout is characterized as cognitive and emotional reactions to high levels of stress of which the consequences are far reaching and problematic. Burnout has primarily been examined in the workforce however, it has the ability to affect a wider range of individuals. In college students, burnout could be detrimental to academic performance, mental health, and overall career trajectory. As such, it is fundamental to understand the risk factors associated with burnout in college students. The purpose of the current study is to understand the impact of adverse childhood experiences (ACEs), mental health, coping and self-regulation on burnout in college students. For the present study, 167 college students completed an online survey assessing the aforementioned variables. After acknowledging the risks and benefits of the study, they answered a number of questionnaires including the Adverse Childhood Experiences (ACEs) Questionnaire, the Patient Health Questionnaire-8 (PHQ-9), the Generalized Anxiety Disorder 7 (GAD-7), the Brief COPE, the Burnout Assessment Tool, and the Brief Self Control Scale. After data collection, descriptive statistics were conducted to examine bivariate correlations among key study variables. ACEs, anxiety, depression, coping and self-regulation were all significantly associated with burnout ($rs > 0.22$, $p < .01$). A multiple regression was subsequently conducted to examine unique predictors of burnout. When all variables were included, only dysfunctional coping ($b = 0.28$, $p = .02$), dysregulation ($b = 0.34$, $p < .001$), anxiety ($b = 0.28$, $p < .001$) and depression ($b = 0.31$, $p = .001$) were predictive of burnout. Implications will be discussed.

Immigration and Poverty in Buffalo

Mariah Regalado
Faculty Mentor: Jessica Fitzpatrick, Social Work

My research question is: What does poverty and immigration look like in Buffalo? Poverty and immigration are closely linked; many refugees come to the United States seeking a better life or refuge from persecution. Buffalo, with its significant immigrant population, faces challenges due to the demands on resources, contributing to its high poverty rate. During my research, I found that many refugees and immigrants struggle with poverty, particularly when they are first resettled (in the case of refugees) and settle (in the case of immigrants) to Buffalo. As well as they face different barriers during their time here, some are language barrier, affording an appropriate housing, trying to find a job in which they pay them the same as the rest. The next steps after finding a place to stay (refugees) or moving into a new country (immigrants) are the hardest ones. To research into Buffalo's immigration dynamics, I interviewed an immigrant person living in poverty to have a better understanding of the problem, also found some local information and statistics about immigrants and refugees. Nevertheless, the city offers numerous community resources to support immigrants in accessing assistance. Through my research, I aim to clarify the different experiences of this small group within our community. I hope that my poster and project will enhance awareness and understanding of the issues faced by immigrants in Buffalo.

Data Visualization: Exploring Software Engineering Jobs in the US

Ei Reh
Faculty Mentor: Sarbani Banerjee, Computer Information Systems

This research project will aim to explore and visualize the "US Software Engineer Jobs" dataset. The primary objective is to examine the data related to the questions of software engineering job titles, income differences, remote work alternatives, location trends, companies, and corporate dynamics within the software engineering region. The purpose is to understand the prevalence of software engineering jobs in specific locations, uncover industry trends, and identify opportunities that align with personal preferences and goals. By investigating the dataset of software engineer jobs, individuals may discover valuable insights on the roles aligning with individual preferences, and opportunities in preferred locations, and assess the potential for remote work. Python programming language will be utilized along with the Pandas and Matplotlib libraries to visualize the trend. Python provides various and flexible environments for data processing and visualization. The "US Software Engineer Jobs" dataset from Kaggle.com will be used as the primary source of information. As for software applications, Jupyter Notebook will be employed to visualize the data. Furthermore, different statistical techniques will be utilized to find patterns and trends in the data. The expected results will include a series of visually compelling charts and bar graphs that will give a clear insight into the depiction of the US Software Engineer Jobs. Attendees can expect a comprehensive analysis providing valuable perspectives on the current state of software engineering jobs in the United States.

Feasibility Study: Squarespace vs. Wix

Ei Reh, David Akanbi

Faculty Mentor: Sarbani Banerjee, Computer Information Systems

The research project explores a complete technical feasibility evaluation that compares Squarespace and Wix's platforms' ability to satisfy Urban League of Rochester (ULR) requirements. The primary goal is to determine the best platform for integrating critical capabilities such as information sharing, messaging, alerts, and ease of use while remaining closely aligned with the requirements. The reason for the project derives from organizations seeking tools for effective and user-friendly platforms to optimize communication within. By leveraging the features and functionalities of each platform, the project aims to provide the client with a thorough analysis and recommendations for improving their present communication framework. Utilizing Squarespace and Wix as the primary sources, the project aims to examine each platform's features, customization options, and technical capabilities. The comparison investigation involves evaluating the platforms' effectiveness in meeting the client's specific communication and information management requirements, highlighting the technical advantages of each solution. The expected outcome includes practical insights regarding Squarespace and Wix's platforms' technical suitability for addressing the client's requirements. A comparison of the platforms will allow the client to determine which platform is most appropriate for the client's requirements. Attendees can expect to learn about the technical aspects and benefits of utilizing Squarespace or Wix to improve corporate communication and information management.

The Sitar and Sound: The Unique Instruments of India

Nathan Reiser

Faculty Mentor: Tiffany Nicely, Music

In Western culture we are aware of some of the instruments that comprise the classification of plucked lute chordophones; a well-known example is the guitar. However, in other parts of the world plucked lute chordophones can sound vastly different. In India, for example, the ***sitar*** and ***sarod*** fall into this classification, even though they sound nothing like a guitar. Why is this so? From an ethnomusicologist's standpoint, we need to view various components of these instruments to understand why. My presentation examines the sitar and sarod from all perspectives to comprehend the functionality of the instruments. Firstly, we need to take a deep look into the culture of Northern India. While some concepts are similar to those in the West, there is a great difference in their musical system that gives their Hindustani genre its uniqueness, such as their compositional techniques and tonal systems. Therefore, the instruments have a different function. Additionally, I examine the organology of the sitar and sarod, that is the study of the instruments' physical construction, and how the sound is produced. Lastly, I discuss the instruments, after aurally listening to the instruments to hear the characteristics of their sound. This leads to relating these understandings to the sound.

Pixels & Passion: Effects of Social Media & Body Image on Relationship Satisfaction

Jessie Ricotta

Faculty Mentor: Eyad Naseralla, Psychology

With rising rates of both adolescents and adults using social networks, there has been a subsequent increase in social comparison over the last twenty years. This includes body-related comparisons. The present study will look at the effects of social media use and body dissatisfaction on romantic and sexual relationship satisfaction among women. Participants will complete four surveys measuring social media usage, body (dis)satisfaction, romantic relationship satisfaction, and sexual satisfaction. I hypothesize that social media use and body dissatisfaction will be negatively associated with romantic and sexual relationship satisfaction. Additionally, I also hypothesize that social media use and body dissatisfaction will interact such that the negative effect of body dissatisfaction will be stronger when participants use social media frequently. This could imply that social media has detrimental effects on romantic and sexual relationship satisfaction, especially among those with low body-satisfaction.

The Effects of Poverty on Education in Buffalo

Emma Ridolfi

Faculty Mentor: Jessica Fitzpatrick, Social Work

My research question is: What do poverty's effects on childhood education look like in Buffalo? Across the country, it has been shown that students from poor or low-income backgrounds do worse academically than those in high-income backgrounds. Childhood poverty also negatively impacts the brain and childhood development. In order to learn about

how poverty impacts education, I interviewed two elementary school teachers that currently work in a local low-income school district. Generally, their answers corroborated my research. I also reviewed local statistics and reports from a few organizations. I found that, similar to the rest of the country, students belonging to low-income households in Buffalo do worse academically than their peers from high-income households. This difference can be seen especially in standardized test scores. There are a good number of resources in the community to link people with quality education. The Cantalician Center in Depew provides parents with a free daycare and preschool program and the Say Yes to Education Buffalo organization works to provide year-round support to Buffalo Public School District students, ages K-12. I hope my project will raise awareness about how deeply poverty affects children and their access to quality education, as well as provide solutions to this systemic issue.

How Safe are Prescriptions After Sitting on a Shelf?

Colby Riexinger
Faculty Mentor: Douglas Ridolfi, Forensic Chemistry

Hydrocodone–acetaminophen is a prescription painkiller that is often given to patients after surgeries and is listed as a Schedule III drug by the Food and Drug Administration. A script is often written for a patient for when pain is severe enough to require opioid treatment or other pain medications cannot be tolerated. Sometimes, patients do not use the entire script, and some tablets are left in their bottle. Although there is no technical expiration date for most prescription medications, it is possible that while sitting on the shelf in your bathroom, compounds can decompose and become dangerous. This project investigated the concentrations of both active and inactive ingredients of a prescription hydrocodone tablet after sitting unused for 3 years past the date the script was written to see if there was any decomposition.

Technical Feasibility Study of Event Management Platforms

Lauren Rinow, Brandon Vasquez
Faculty Mentor: Sarbani Banerjee, Computer Information Systems

This research project conducts a technical feasibility study on a possible solution for a non-profit organization called Urban League of Rochester. It aims to explore event management platforms to see what they can offer for the organization. Previously, the organization has used the Business Plan on Square Space to run its website. Now, they would like more capability to provide information about events, as well as attract new members. Based on the organization's requirements, will an event management platform work better for them than their current Square Space plan? The project will follow Agile Methodology supported by JIRA, a task management software. It will be evaluating EventMobi; an event management platform that focuses on virtual and hybrid events, Wild Apricot; an event management platform by Personify that uses cloud software to simplify membership tasks, and Accelevents; an enterprise event management software that gathers and provides event data. Each platform will be evaluated by start-up/integration cost, financial viability, and potential risks. Free trials will be used in order to assess each platform and its features, a vendor evaluation table will be used along with a summary of pros and cons to compare the different platforms. The project will conclude with a platform recommendation based on the study.

Rhythmic Roots: Exploring the Origins of Puerto Rican Music

Aneris Rivera-Wagner
Faculty Mentor: Tiffany Nicely, Music

The vibrant musical landscape of Puerto Rico is characterized by a diverse array of rhythms that reflect the island's rich cultural heritage. This research delves into the origins of Puerto Rican rhythms, tracing their roots through a historical and cultural lens. Drawing upon archival records, ethnomusicological studies, and oral traditions, this study seeks to uncover the multifaceted influences that have shaped Puerto Rico's distinctive musical identity. The Taino indigenous people, Spanish colonization, African slavery, and subsequent waves of migration have all left indelible marks on Puerto Rican music. The fusion of African drumming techniques with European melodies and indigenous elements laid the foundation for genres such as bomba, plena, and salsa. Moreover, the socio-political dynamics of Puerto Rican society have contributed to the evolution and dissemination of these rhythms, both locally and globally. Through a comprehensive analysis of historical texts, musical compositions, and cultural practices, this research illuminates the interconnectedness of Puerto Rican rhythms with broader historical narratives of colonization, resistance, and cultural exchange. By contextualizing these rhythms within their historical and socio-cultural frameworks, this study aims to deepen our

understanding of Puerto Rico's musical legacy and its enduring significance in the global cultural landscape.

House Plants and Well-Being

Alexander Rockey
Faculty Mentor: Jill Norvilitis, Psychology

The literature currently is rich in information that associates well-being with being in nature. However, what has yet to be examined is if the relationship extends to indoor house plants as well. Thus, this study seeks to determine the correlation between well-being and house plants. The survey consists of roughly 110 questions measuring well-being, satisfaction with life, depression levels, optimism, gratitude, hobbies, preference for nature and house plants and if one owns house plants. Participants are being asked to complete the survey online through Qualtrics. Participants are being recruited through faculty in the psychology department at Buffalo State University. The hypothesis is that people who own plants will score higher in well-being. Data are being collected and results will be presented at the conference.

Into the Future: Gender Differences in Content Created by Popular Twitch Streamers

Tyson Rogers
Faculty Mentor: Eyad J. Naseralla, Psychology

As more people flock to social media, one of the platforms that has recently experienced a lot of success is Twitch, a website that allows users to live-stream themselves, often while interacting with viewers. Since most Twitch viewers are male, the study wanted to look at differences between male and female streamers. To test this, two research assistants coded the top 20 most popular male and female streamers (based on number of followers they have on the platform) on several variables. These include attractiveness, humor, enthusiasm, agreeableness, talkativeness, amount of body visible during streams, and if the streamer offers links to adult content. We hypothesized that male and female streamers will differ in the nature of their content, with attractiveness being emphasized more in female streamers, while personality is more emphasized in male streamers.

Celtic Canada (Or, What Remains of It)

Lauren Rogoza
Faculty Mentor: Tiffany Nicely, Music

Gaelic culture has long been riddled with strife. Its originators, the Celts, were defeated by the Romans and soon after troubled by Anglo-Saxon invaders. As resilient as they were, constant battle, overpopulation, and famine left only two options: flee/start anew or stay/remain docile. Their self-sufficient lifestyle likely empowered many to pick the radical path, and so large migrations began. Immigrants fled to various countries/continents, and a large population opted to travel in pursuit of economic opportunity–to America and Canada. In America, Celts settled into the melting pot culture of its frontier regions and urban centers. In certain parts of Canada, however (like Prince Edward Island, Newfoundland, and Nova Scotia–translated: New Scotland), a strong Scottish population highly influenced north highland life. In fact, more people of Celtic descent now populate such locales than remain in Scotland (though Gaelic remains a dying language). Celtic music heard nowadays in Canada is still obviously tied to its cultural roots, featuring lively fiddles, lyrics of anguish and new beginnings, and dance-begging syncopation. However, its popularity has wavered greatly, necessitating the mainstream push of "celebrities" in the style. Such musicians have embellished the original musical ideas, contributing to its modernization, but they were successful; Celtic music in Canada is well-known and drawing crowds, played and enjoyed internationally. Prince Edward Island, home to multiplying Celtic musical festivals and no more than a small subset of Gaelic speakers, perfectly exemplifies the style's lingering commonalities and development over time, which my research examines.

How Does Poverty Impact Healthcare in Buffalo?

Heelanny Rojas
Faculty Mentor: Jessica Fitzpatrick, Social Work

My poster explores the research question: How does poverty impact healthcare in Buffalo? Health disparities hinder a person's ability to live a high-quality life and result in significant personal costs, sickness, disability, and lost productivity. Harmful socioeconomic factors that affect health, such as poverty, impoverished neighborhoods, inadequate schools, high unemployment, low property values, limited access to public transportation, limited availability of food, lead pollution, and limited access to healthcare, are at fault for the disparity in health. An individual's race, socioeconomic

status, and other complex factors can contribute to health disparities and determine whether a person has access to health care or receives inadequate service. Like many cities, Buffalo has a diverse population. About half of the population in Buffalo is made up of racial minorities, and 50% of citizens in Buffalo are underrepresented minorities in the health care system. I will review local reports and data about health disparities in Buffalo, discussing health disparities. I will also do a poll to figure out how often minorities in Buffalo see a doctor compared to their white counterparts. I expect to find that Buffalo has health disparities that are race-based and poverty-influenced. These not only show inequalities but also unfairness resulting from injustices caused by structural racism in the system. There are some local agencies that are working to address health disparities in our community, especially among racial minorities. I hope that when people view my poster, more awareness will be brought to the issue, and the process to get everyone affordable and accessible health care will be available.

The Statehood Controversy: Puerto Rico and the Question of Statehood during the 1980s

Hayley Rosa
Faculty Mentor: Bridget Chesterton, History and Social Studies Education

This research examines the long-term challenge of Puerto Rico's political status in the 1980s. Since becoming a territory under the United States of America, such conflicts have been a significant dispute. This poster investigates the problem of Puerto Rico facing a multitude of factors that encouraged major discussion of statehood in the 80s, prompting consideration of its political stance. Prior research held a focus on the usage of plebiscites which brought up conversation pertaining to the differing economic crises, cultural challenges, and determination for autonomy. However, most publications or analyzed works have struggled to discuss the full spectrum of the question of Puerto Rico's political status throughout the conduction of said related studies. This research will further investigate the broader picture of the discussions correlated with the question of Puerto Rico's political status in the 80s by using specific methodology in the form of data from government censuses, academic articles, speeches, and aforementioned studies previously done. By using the works of scholars such as Edgardo Meléndez, Roland Perusse, Carlos Romero-Barceló, Jorge Heine, and Juan M. Garcia-Passalacqu, as well as studying speeches from individuals like Ronald Reagan, this paper will thoroughly consider the surrounding factors which led to both the United States of America and the Commonwealth of Puerto Rico to consider whether it should remain as a Commonwealth, Independent, or Statehood.

Poverty as It Relates to Mental Health and Substance Use Disorder

Nicholas Ross
Faculty Mentor: Jessica Fitzpatrick, Social Work

My research topic is on poverty and its impact on mental health and substance use disorder (SUD). According to the National Alliance on Mental Illness [NAMI], 1 in 25 adults will experience serious mental illness per year in Buffalo. While it is difficult to estimate the portion of the Buffalo population that suffer from SUD, it is important to note that 2023 saw the deadliest year in Erie County with nearly 400 opioid overdose deaths. In order to learn about poverty and its impact on mental health and SUD in the Buffalo area I went into the community to take pictures of how it looks. I also reviewed, read, and researched local news reports to gather some statistics. I expect the results to show a correlation with poverty and the instances of mental health and SUD diagnoses. There are multiple resources in the community that will link people with resources, such as Erie County Department of Mental Health, Restoration Society, Erie County Department of Health, Office of Harm Reduction, and Save the Michael's. It is my intention that this research topic will raise some awareness of the issues and assist in reducing the stigma that individuals with these issues face.

Freedom of Choice. Linking Economic Freedom and Civil Conflict

Seth Rueger
Faculty Mentor: Mehwish Sarwari, Political Science, Public Administration, and Planning

How do the economic institutions of a state affect the likelihood of civil war onset? Established findings regarding the phenomena of civil war onset among countries view it be a "trap of the poor" (Collier et al., 2003) where underdeveloped and economically weak states fall victim to this phenomenon. The economic-conflict link circles around the grievances of citizens against their sitting government to take arms in efforts to address their economic woes. However, such evidence negates institutional interaction that can either provide (inclusive) or deprive (extractive) their citizens in addressing

economic grievances. I put forth the argument that countries that have inclusive economic institutions are less likely to experience civil war. This paper investigates contemporary evidence about the interaction between inclusive and extractive institution roles across the world from 2000 to 2018 on an annual basis. Using control measures of oil dependence, trade, human development, and population, the empirical findings of the study support the theoretical expectations proposed. Specifically, there is a negative association between the presence of inclusive economic institutions and the likelihood of civil conflict. From these findings, policy leaders and government officials can better deduce how institutions play a role in the welfare of their citizens or how it can lead to social collapse.

La Caduta di Cosa Nostra: The US Government's Assault on the Mafia in the 1980s

Joshua Rutkowski
Faculty Mentor: Bridget Chesterton, History and Social Studies Education

In the 1980s, the Italian Mafia, also known as ***Cosa Nostra*** or simply the "Mob," was the target of a U.S. Government led crackdown on organized crime. This was a change of pace from previous decades, where the Mafia and its various illicit dealings were nearly untouchable from authorities. This paper will examine the new attitudes and methods for authorities in the fight against organized crime in the 1980s, including the Racketeer Influenced and Corrupt Organizations Act (RICO). RICO significantly emboldened a Federal Government eager to take down the Mafia. This act, along with new evidence gathering methods and philosophies made the Mafia vulnerable for the first time in decades. This new legal strategy culminated in two of the most important Mafia RICO trials: United States v. Salerno (1985-1986) and United States v. Gotti (1992). Both cases will be examined for their usage of RICO in this paper. Through the use of period (1980s) newspaper articles and first-hand accounts of those involved in undercover work, evidence gathering, and legal proceedings, the beginning of the downfall of the Mafia and the inner workings of the Government crusade against them will be exposed. By examining the legal strategy of the Government's war on the Mafia and its inner workings, it proves that the war on organized crime in the 1980s was successful.

Characterization of Connexin 30.3 F189Y: a Mutant Associated with Erythrokeratodermia variabilis (EKV)

Ettan Saiwala
Faculty Mentor: I. Martha Skerrett, Biology

Connexin proteins are highly expressed in the human epidermis where they form gap junctions. A connexon is a transmembrane channel composed of six connexin subunits. Characteristically, two connexons form an intercellular gap junction channel. However, connexons can also function as transmembrane channels both physiologically and pathologically. Connexin30.3 (Cx30.3) is one of several connexins expressed in the stratum granulosum layer of the skin. Point mutations in the Cx30.3 gene (GJB4) cause a rare skin disease categorized as erythrokeratodermia variabilis (EKV) involving areas of erythema (reddening of the skin) and hyperkeratosis (thickening of the outer layer of skin). Using site-directed mutagenesis we created the Cx30.3 mutant F189Y associated with EKV and expressed this mutant in Xenopus oocytes. F189Y-injected cells died quickly compared to Cx30.3-injected cells. They did not, however, appear to be more permeable to water, as shown through oocyte bursting experiments. Electrophysiological characterization using whole-cell voltage clamp revealed an increase in membrane conductance in oocytes expressing F189Y. This conductance was likely mediated by F189Y as it was blocked by divalent cations. We also observed gap junctions formed by Cx30.3 and Cx30.3 F189Y in paired oocytes and will discuss the properties of these junctions.

Poverty in Mental Health in Juveniles

Tamia Samuels
Faculty Mentor: Jessica Fitzpatrick, Social Work

My research question is: What does poverty in mental health in juveniles look like in Buffalo? Nationwide, poverty has strong direct effects on juveniles' mood and indirect negative effects on the parent-adolescent relationship. Studies also show that children living in poverty are three times more likely to have psychiatric conditions including ADHD and oppositional defiant disorder (ODD). In order to learn about what poverty looks like in Buffalo, NY, I plan to interview a senior case manager that works with juveniles and families. I also plan to review local reports on mental health cases with juveniles and how it is affecting their lives. I expect to find that like the rest of the U.S., living in poverty affects juveniles mental health everyday here in Buffalo. I also expect to learn what resources

can help juveniles with their mental health. There are plenty of resources in the community that will link families and juveniles to help with their mental health. I hope my poster can help someone be more willing to help juveniles with their mental health and make a difference within the communities living in poverty the most.

Electronic Resource Center

Elmer Santos
Faculty Mentor: Sarbani Banerjee, Computer Information Systems

This project aims to address the challenge of efficient electronic resource management by developing the Electronic Resource Center (ERC). ERC provides a centralized platform for storing and accessing information about electronic resources offered by various organizations. By integrating user-friendly interface, robust search functionalities, and security measures, LERC promises to streamline resource management processes and enhance accessibility for users across different domains. The large number of resources poses a challenge to efficiently manage and access relevant information. The Electronic Resource Center (ERC) project is being created to provide a solution to this problem by offering a centralized platform for storing, organizing, and accessing resources data electronically. This project is essential to address the growing need for streamlined resource management in the school, this application can also be used by other organizations. The development of Lafayette Electronic Resource Center (LERC) will utilize Visual Basic (VB) programming language for its user interface design and prototyping. The project will leverage data validation mechanisms to ensure the accuracy and consistency of resource information. Additionally, ERC will integrate file handling capabilities, enabling users to save and load electronic resource data for enhanced data persistence and portability. Upon completion, the Electronic Resource Center (ERC) project will offer users a user-friendly interface for efficient electronic resource management. Users can expect robust search functionalities, enhanced data validation, and improved accessibility to electronic resource information. By providing a centralized platform for resource management, ERC aims to streamline processes and empower users across various domains.

Conceptualizing and Measuring Burnout in College Athletes

Catherine Sarich
Faculty Mentor: Michael MacLean, Psychology

Burnout is a serious problem facing athletes who are exposed to high levels of stress. Consequences of athlete burnout include depression, reduced satisfaction in sport, and athlete dropout. There are multiple conceptualizations and scales related to burnout. Existing conceptualizations have defined burnout as either consisting solely of exhaustion or exhaustion plus other components. The exhaustion definitions are not able to fully encompass burnout, and the conceptualizations with other components measure both symptoms and coping strategies in the same scale. The goal of this study is to provide a new way of conceptualizing and measuring burnout that can be considered a viable alternative to the existing definitions. The first step will be to test whether exhaustion and burnout are separate constructs. Assuming they are, the next step will be to test a new conceptualization in which the relationship between exhaustion and burnout is moderated by the level of reward a person experiences related to their sport. New measures will be created to be able to assess these variables. Finally, the third step will be to determine which perceived reward factors are most protective against burnout. We predict that exhaustion and burnout will be correlated but distinct factors and that perceived rewards will moderate the relationship between exhaustion and burnout. We expect that intrinsic reward factors will be the most protective against burnout. If these hypotheses are supported by the findings, our conceptualization of burnout will be a viable alternative and will have important implications for preventing burnout.

Cortisol Levels During a Stressor Can Predict Long-term Weight Change

Victoria Sasso
Faculty Mentor: Naomi McKay, Psychology

There is evidence that cortisol (a hormone released after stress) affects weight change in the short term. Previous it was found that over 6 months, higher baseline cortisol and chronic stress predicted short-term weight gain. In addition, it was found that increased cortisol over the semester predicted an increase in BMI. However, there is not much information about longer term effects of cortisol levels on weight change. Therefore, the hypothesis was that both baseline cortisol and cortisol response to a stressor would predict weight gain over three years. Five separate studies were originally conducted,

each study gathered data on participants weight, height, eating patterns, and other demographic information. Three of these studies put a subset of participants through a stressor and measured their baseline and post-stress cortisol, anxiety level, and blood pressure. Three years after coming into the laboratory, participants were contacted to give their current height and weight so weight change could be compared to the time of the original study. Results showed that a change in cortisol during the stressor predicted weight change in participants at the 3-year follow up ($p = .011$). Interestingly, baseline cortisol did not predict weight change. Moreover, it was found that dietary disinhibition at baseline predicted weight change for participants ($p=.013$). It was also examined if original BMI mediates the relationship between cortisol and weight change. There was no relationship found between these variables. This study gives us an interesting starting point to continue research on the effects of cortisol response, how it can affect long term weight changes and why this change occurs.

Sexual Victimization and Anger: How Do Regulatory Skills Play A Part?

Alyssia Schwab
Faculty Mentor: Kimberly Kamper-DeMarco, Psychology

Sexual victimization is defined as any unwanted sexual advances that an individual is subjected to. Research suggests that sexual victimization is steadily increasing and according to the Department of Justice, most unwanted sexual advances happen to women in late adolescence and young adulthood, making college-aged women at high risk for being victimized. It is well established that sexual victimization has many adverse effects (e.g., isolation, sexual powerlessness, self-esteem issues, etc.) and creates a greater risk of revictimization in the future. In the United States, approximately 20% of college aged individuals report being sexually victimized with 90% of those being women. Self-regulation may be an important variable helping women to cope with sexual victimization experiences. Regulatory skills are the ability to control or modify a person's behaviors based on their current environment. Women who are victimized can find it difficult to understand perceived threats, positive and negative influences, and other similar situations and thus may not respond in a socially "appropriate" way. It is hypothesized that women who have been sexually victimized may be more at risk to experiencing anger when they have poor regulatory skills. As such, the goal of this study is to examine the possible association between sexual victimization and anger in college aged women with regulatory skills being the moderator.

Connexin Mutants Associated with Skin Disease Induce Non-Junctional Currents in Xenopus Oocytes

Nagehan Senturk
Faculty Mentor: I. Martha Skerrett, Biology

Gap junction proteins are critical for skin function, as evidenced by a range of hereditary skin diseases associated with mutations in connexin genes. One way to better understand mutations on the molecular level is to express and characterize proteins using an exogenous expression system. In this study we used the Xenopus oocyte expression system to study Cx30.3 mutations associated with skin disease. The project was initially associated with Advanced Cell Biology (Spring 2023) at which time I created a mutation using site-directed mutagenesis, confirmed the mutation by sequence analysis and used in vitro transcription to make RNA. The class created eight mutants and screened their function using a rapid survival assay. It was noted that some mutations induced cell death while others did not. Through independent research I used electrophysiology to assess the properties of mutants in more detail, focusing on their ability to induce non-junctional currents in Xenopus oocytes. Voltage-clamp electrophysiology and subsequent analysis of current versus voltage (I-V) relationships revealed that, compared to wildtype Cx30.3, at least two mutants induce membrane current and the currents have mutant-specific variations in rectification and voltage-sensitivity.

The Many Colors of Junkanoo

Emily Shabazz
Faculty Mentor: Tiffany Nicely, Music

How does the feeling and spirit surrounding Junkanoo affect the life and culture of the Bahamas? In many countries affected by the African slave trade, over the course of years, the traditions and rituals that the enslaved peoples once carried with them have morphed into something that vaguely resembles their origins only with a very modern twist. In the Bahamas, during Boxing Day and New Year's they have an all-night festival that I was able to witness called "Junkanoo," which goes from roughly 8pm-8am on Bay Street in Nassau. Vendors of all kinds come out to sell their goods, and it's quite an exciting event for tourists during the holiday season. The parade includes dozens of groups all vying for the chance of a cash prize. A big part of the parade is the costumes that take months to build and upwards of $80,000 to make, many being sponsored by local stores. The tradition comes from

West African roots, with giant masquerade heads made of tissue paper, cardboard, and other simple materials. When interviewed, some of the locals feel that while creating the costumes, it's like they are getting back to who the really are and it helps to bridge a gap to their ancestors. The themes of the groups are all kept secret, and people who work on this month's-long task also still complete their full-time jobs. My research explores this unique experience celebrating this day of freedom by the entire country.

Polka Music as Americana

Thomas Sieracki
Faculty Mentor: Ann Liao, Communication

The Polka is a dance / style of music that formed in Bohemia in the 1800s and spread to surrounding nations, especially in Central/Eastern Europe as well as other parts of Europe. Therefore, the Polka has become an inherently European Icon. However, as time went on and diasporas from Europe began, many immigrants brought the Polka to the Americas, notably the United States. Over time in the United States, the Polka has taken on unique aspects and become just as distinctly American as it is European.

The Connection Between Poverty and Substance Disorder

Jaliyah Simmons
Faculty Mentor: Jessica Fitzpatrick, Social Work

My research topic will be the connections between poverty and substance use disorder. I discuss how the two can go hand in hand, although one doesn't always lead to the other. When someone struggles with both it makes dealing with and treating them much harder. Someone battling with substance use disorder needs treatment and rehabilitation but the cost of these things in today's society makes it so much harder for them to get help because without being able to afford proper treatment their disorder can get progressively worse over time. I chose this topic because I believe addiction is something that tends to be villainized in our society although it is a curable disorder that requires treatment. As stated it is curable but it is something people will have to battle with throughout their entire lives, through hardships those who have substance use disorder have to decide to stay clean and continue their treatment. The lack of support, the negative stigma surrounding the disorder, and barriers to accessing treatment make this harder. My goal for this project is to be able to list solutions as well as educate people on the topic and allow people to understand addiction better and how to be more compassionate, supportive, and less judgmental towards those battling with substance use disorder

Michael Jackson's Music Impact on Youth and Teens in the US (80s edition)

Novan Slater
Faculty Mentor: Bridget Chesterton, History and Social Studies Education

This paper will dive into Michael Jackson and the impact his music had in the 80s on individuals, groups, and even other artists in this era. Pop revolutionized music like its counterpart rock. It brought in a new distinguished sound and flow that music has not heard yet. Michael Jackson's career will be looked through from 1980 to 1989 and to be more specific his music career in chronological order. Song by song will be measured to show what type of impact his music had on other inspiring artists at this time and the impact his music had on the youth and teens. As well as the impact that his music videos had on the audience and how every year his fan base grew and there were more and more teens singing his songs or trying to find outfits that match Michael Jackson. The music and the music videos themselves that were produced and put out to the public will be one of our main sources that we will be using to show the impact his music had on youth and teens. Some of the songs that will be indulged in this paper will be "Beat It," "Man in the Mirror," "Thriller," and other amazing songs created by this artist.

Exploring the Unknown Information about Preparing for Death and Dying

Sonia Swann
Faculty Mentor: Amy Manning, Social Work

Holistic planning for end of life regardless of age, expectancy, health and agency is lacking across the United States. Covid, along with the aging of the largest generation have shown that preparation is needed. The purpose of this study is to gather baseline information to broadly determine existing knowledge of end-of-life planning, to create a framework for a foundational structure to address the information and knowledge gaps that exist across the board. Utilizing an online survey, over 2,000 responses were collected. The survey consisted of multiple-choice and long and

short answer questions focusing on financial, emotional, legal, and planning. This is the beginning step in the process of building the full scope of the model that will be a free source of information available to anyone in need. Early results indicate a broad lack of knowledge, and general misconceptions regarding what is and is not available. Initial findings will be presented.

Biases in the Criminal Court System: A Risk Factor for Sentencing Disparities

Sarah Tasseff
Faculty Mentor: Jessica Fitzpatrick, Social Work

A significantly high proportion of research is concerned with the social justice issue regarding sentencing disparities, as it has been well documented by government reports that such discrimination exists within the court systems, concerning race, socioeconomic status, gender, and citizenship status. Notably, research has shown that the impact of biased decision-making contributes to higher rates of incarceration for individuals with diverse backgrounds such as; race, socioeconomic status, gender, citizenship, and health impairments. Consequently, such biases can result in harsher outcomes for marginalized groups. My research study focused on investigating bias within the criminal justice system, specifically during arraignment proceedings in Buffalo City Court. This research conducted employed qualitative methods through observation of arraignments held in Buffalo City Courts throughout the Spring 2024 semester. Based on my observations, I expect to find that despite the efforts of the implementation of bail reform in New York State to aid in addressing disparities within the court process, there still remains a distinct discrepancy in the treatment of accused individuals by court personnel and throughout the judicial proceedings. My poster will showcase compelling examples which have been instrumental in reaching my conclusive findings.

The Role of Anger and Gender in the Association between Peer Victimization and Binge Drinking among College Students

Coralie Theogene, Kayana Ramsingh-Dixon
Faculty Mentor: Kimberly Kamper-DeMarco, Psychology

Peer victimization is defined as being the recipient of aggressive behavior, whether physical, verbal, or relational. Adolescence has been shown to be the time when peer victimization occurs most frequently, with victimization intensity increasing through late adolescence. Adolescence is also a time when alcohol and other illicit substance experimentation begins with college being a time in which overwhelming substance use occurs. Only a few research have shown the relationship between alcohol usage and peer victimization. And according to study findings, peer victimization among teenagers was positively correlated with substance use, such as binge drinking, smoking, and using marijuana. Peer victimization and substance use were significantly correlated in male adolescents, but not significantly in female adolescents. Emotional expression and distress may play an important role in understanding the association between peer victimization and alcohol use. Specifically, different levels of anger that are experienced among individuals may help our understanding of binge drinking in college students. Therefore, it is crucial to further investigate how anger moderates the association between peer victimization and alcohol use among women and men in college. We hypothesize that peer victimization will have a strong influence on alcohol and substance use among women reporting higher levels of anger.

Women in War: Floria Tosca's Struggle

Aleksandra Tirone
Faculty Mentor: Carolyn Guzski, Music

Giacomo Puccini's (1858-1924) ***Tosca*** is perhaps one of the composer's most beloved operas. Despite being described as a "product of its time," ***Tosca*** is universally emotional, astounding, and musically rich. The story, adapted from Victorien Sardou's 1887 play ***La Tosca***, is set in 1800 Rome, a politically tumultuous time as Napoleon wreaks havoc on Europe. The titular character, Floria Tosca, is a complex character, a dramatic soprano who enters the story as a jealous and fiery woman, who also possesses a strong Roman Catholic devotion. However, in her famous Act II aria, "Vissi d'arte," the audience is exposed to Tosca's imperfections: her struggle in her relationship with God, and her relationship with herself as a sex symbol. Puccini masterfully sets Tosca's predicament in the story by using quick, panicked sixteenth notes and large leaps in pitch to signify her jealousy, as she accuses her lover, the tenor Mario Cavaradossi, of betraying her. In his composition of "Vissi d'arte," Puccini uses soaring melodies and lush harmony to convey Tosca's questioning of God, as part of her human experience.

Thatcher: Opportunity or Against the Odds (1978-1981)

Tyler Troyer
Faculty Mentor: Bridget Chesterton, History and Social Studies Education

This poster seeks to explore how Margaret Thatcher rose to power, either against the odds or opportunity. Would she rise against the odds, where she would have had to overcome some form of change or overhaul of neoliberalism; turning the Reagan based neoliberal ideas into a British form, while simultaneously capitalizing on public opinion. In order to gain a better understanding, the poster first has to look at how British politics functions differently from US politics, and how British elections work, in a broad stroke. Next, looking at not only what neoliberalism is and a select few of its defining policies, also taking a look at how Thatcher turned neoliberalism from a US idea into a British idea. Then, the poster will be looking at British newspapers to get a basis of public opinion in relation to other political parties, political events, policy notions, and overall public opinion of Thatcher. Initial research has led to a preliminary conclusion of both against the odds and opportunity, with opportunity being favored. The research also suggests that Thatcher had modified the neoliberal ideas of Reagan, while the political tailwind began to blow due to other defining events of the late 1970s.

Characterization of AuNPs Synthesized via Direct vs. Inverse Turkevich Method

Jillian Tung
Faculty Mentor: Jinseok Heo, Chemistry

Near-infrared (NIR) surface-enhanced Raman scattering (SERS) holds promise for high-resolution biomedical imaging, particularly in early cancer diagnostics. This technique relies on gold nanoparticles (AuNPs) modified with NIR reporter molecules. Commercially available AuNPs are typically synthesized using the Turkevich method, where citrates are added to a solution of gold ions at an elevated temperature, facilitating reduction and stabilization of the AuNPs. The negatively charged citrates play a crucial role in preventing AuNP aggregation through electrostatic repulsion. However, for NIR-SERS imaging, controlled aggregation is necessary to generate strong signals, as uncontrolled aggregation can lead to inconsistent results. Previous research has shown that a quick-freezing technique can control AuNP aggregation without using additional chemical agents, resulting in moderately aggregated AuNP clusters that exhibit long-term stability and reproducible NIR-SERS signals. Interestingly, analysis of the SERS spectrum of the aggregates of commercial AuNPs revealed unexpected Raman peaks other than citrates. These peaks may be attributed to dicarboxyacetone (DCA), a byproduct of citrate oxidation during the Turkevich synthesis. Despite its potential relevance, direct detection of DCA remains challenging due to its low concentration. Recent studies have proposed the inverse Turkevich method as an alternative, where gold ions are added to a boiling citrate solution, leading to better control over AuNP sizes. Moreover, the boiling step may increase the production of DCA, potentially resulting in higher concentrations of DCA on the surfaces of AuNPs synthesized using this method. Our project aims to synthesize AuNPs using both the traditional and inverse Turkevich methods to investigate the origin of the mysterious Raman peak observed in the aggregates of commercial AuNPs.

College Students and Money

Alex Valery
Faculty Mentor: Jill Norvilitis, Psychology

Understanding the complex interactions of several factors influencing financial debt is essential for effective debt management strategies. This study will explore the relationships between multiple variables, including parenting styles, social class, financial knowledge, peer influence, social media influence, and the level of financial debt among individuals. Through an online survey distributed among university students, this research will examine how different parenting styles, socio-economic backgrounds, and levels of financial literacy relate to debt accumulation. Also, the study will explore the impact of peer influence and social media influences on individuals' financial decision-making and debt outcomes. Through analysis of the online survey, this study aims to uncover the complexity of these factors and financial well-being among university students. This research will allow for a better understanding and provide valuable guidance for educators, and financial advisors in developing intervention points to enhance financial literacy and promote responsible financial behaviors among young adults. Data are being collected and results will be presented at the conference.

What the Punk? Vivienne Westwood and Her Contributions to the Punk Scene

Lauren VanDusen, Jason Dolegowski, Frankie Giammarinario, Jason MacClellan
Faculty Mentor: Arlesa Shephard, Fashion and Textile Technology

Vivienne Westwood molded the punk scene and helped it evolve to what it is today. Westwood embodied what it meant to be "punk" and often pushed the boundaries set by mainstream societal norms or constructs. The term "Punk" is defined as an aggressive form of rock music, which then became a political and social movement that became the image of teen alienation and rebellion in the 1970s-1980s. Sarcasm, hostility and vital energy, all facets of the punk aesthetic, which using her platform, Westwood embraced vocalizing what society viewed as taboo. Through a literature review of Westwood's contributions to the fashion industry, it can be seen that she represented punk ideals and furthermore, Westwood helped marginalized members of society to participate in fashion. Much of her influence came from her work as the store owner of SEX. SEX, sold the uniforms of socio-economic rebellion, ultimately allowing this marginalized community to represent their independent roles in punk subculture and in society. Vivienne Westwood would go on to create her own namesake brand that sought to continue voicing her views on gender norms, fracking, ethical fashion, environmental issues, and standing up to unfair politics and abuse of power by government leaders. She clothed the youth of the world seeking to make a difference, and giving the youth a voice by the way they dressed. Westwood's brand would be successful for many years continuing after her passing, and her influence was felt by many, especially women, and the punk scene on a global scale.

Whistle While You Work: Exploring Sea Shanties

Keith Vantino
Faculty Mentor: Tiffany Nicely, Music

My project explores Atlantic Sea Shanties and their correlation to working while at sea for months at a time. Sea shanties were used as far back as Vikings while they were sailing the seas. Sailors have always been known to make sounds while working on the deck, and singing is just another way they keep themselves busy. The format of these songs works similarly to African American Gospel songs. You have a leader who sings out orders or a verse, and you have the response of the crew to keep themselves focused while they work. These leaders would use different chants to elicit actions from his crew, chants such as 'yo-ho-ing'. Sea shanties, above all else, became folk songs and methods to spread news around. These shanties would spread the stories of different events that happened while at sea. My project explores how the music of sea shanties contributed to the labor of those working on water vessels.

Impacts of Stress on Food Intake

Alyssa Vasquez, Rosalia Hernandez, Juliette Falzone, Alexa Hausauer
Faculty Mentor: Naomi McKay, Psychology

Previous research has demonstrated that stress influences food intake, specifically food choices. Studies indicate a preference for high-calorie food items, especially in the immediate aftermath of a stressful event. Our study expands this understanding by looking into the prolonged effects of stress on eating behavior, beyond the relatively brief scope of typical laboratory settings. The hypothesis of the current study is that acute stress exposure will lead to diminished appetite and reduced food intake immediately after the stressor but will elevate intake the following day. To investigate this, we recruited an all-female cohort of Psychology students and exposed them to both stress-inducing and no-stress scenarios. Laboratory personnel monitored physiological responses and food consumption, both during the initial experiment and for the next 24 hours, utilizing an online automated self-administered dietary assessment tool. Salivary cortisol measurements were used to verify participant stress levels. We expect participants to experience an overall reduction in appetite and food intake, following exposure to an acute stressor and will elevate after the participants leave the laboratory setting. Our findings aim to contribute to a comprehensive understanding of stress-related dietary changes, informing strategies for long-term stress management and overall health promotion for an increasingly stressed society.

Full Stack Web Application: To-Do Tracker

Brandon Vasquez
Faculty Mentor: Sarbani Banerjee, Computer Information Systems

The primary focus of this research project is to develop a comprehensive to-do list tracker as a full-stack web application, including both front and back ends. The main goal is to create a beneficial tool tailored specifically for college students, acknowledging the crucial role of time management and task prioritization in academic and real-world contexts. The aim is to provide a solution that enhances productivity and organization. To achieve this objective, we will utilize a range of technologies, such as HTML, CSS, JavaScript, PostgreSQL (Structured Query Language), EJS (Embedded JavaScript), React.js, Git, and potentially APIs and security protocols. Development will be facilitated by Visual Studio Code as the IDE, with GitHub/Git managing version control and repository management, and pgAdmin handling database operations. Expected outcomes of this project will include a fully functional full-stack web application where users can create accounts, log in, and efficiently manage their to-do lists. Users will have the capability to create, edit, delete, and prioritize tasks. To ensure user privacy and data security, secure user authentication mechanisms will be implemented. Additionally, users will be able to customize their task lists with categories, tags, due dates, and reminders, enabling personalized task management. Integration of a notification system may alert users about upcoming deadlines, task reminders, or changes to shared task lists. Furthermore, the application will be designed to be responsive and accessible across various devices. Ultimately, the full-stack web application will serve as a comprehensive tool for users to efficiently manage their tasks and enhance productivity.

2023-2024 Buffalo State Baja SAE

Michael Walter
Faculty Mentor: Jikai Du, Engineering Technology

Baja SAE is a collegiate engineering competition that challenges student teams across the country to design, build, and race off-road vehicles. Students are tasked with creating a design that is both unique and cost effective, while also adhering to a detailed rulebook. These rules are updated and released semi-annually, as seen appropriate by the Baja Society of Automotive Engineers. Vehicles are entered into a huge competition that allows students to race against other university's teams, competing in a variety of different races that challenge their durability and ability to perform. This competition is hosted by Baja SAE three times throughout the year. Buffalo State is aiming to attend the May 2024 competition in Williamsport, PA. This senior design project is a continuous effort that is carried through many semesters, and thus handled by many teams. Each semester, the new team must review the previous Baja team's design, along with review the mechanics involved in the development of the vehicle. Each member of the team is then assigned a task that they can individually work on to advance the development of the vehicle. The vehicle is designed to optimize the functionality of the vehicle and withstand the conditions of the competition while being as lightweight as possible.

African Women's Voices and Roles in Music: Connection and Contribution to Spirituality

Alexa Wery
Faculty Mentor: Tiffany Nicely, Music

In many areas of Africa, music helps people tap into their spirituality. Where there is little research done and very little known, is how the women of these communities and areas shape spirituality through their voices in music. Many African communities are driven by just that: community, as well as teamwork–and not just within their music and spirituality. For anyone who won't turn a blind eye, it is clear to see that African women (as is the same for women in other cultures), are not seen as equally important contributors to music. Together we will explore how women play a role in different musical cultures and traditions: Tanzanian Kwaya people and their soundscapes, encompassing disaffection and spirituality; West African female Griots or Grioettes (performers); Tanzanian Maasi tribes; different linguistic groups and their oral traditions in Benin (West Africa); as well as general vocal/instrumental training throughout Africa as a whole. Additionally, my work draws on one African woman's singular experience with music and how that transcended her personal spirituality. Are you willing to look at women's roles in music and spirituality in a culture that hasn't been studied or given the time of day? Let's dive in together.

Marked Merchants: Effects of Tattoos on Perceptions of Customer Service Workers

Michael Weyant
Faculty Mentor: Eyad Naseralla, Psychology

Tattoos are a common form of self-expression and art. However, having tattoos often leads to discrimination and stigmatization. In previous research, tattooed individuals were seen as less friendly, less competent, and less likable than non-tattooed individuals in a professional setting. The present study looks to further examine this relationship by testing the effects of visible tattoos on the perceptions of customer service workers. Participants will be presented with a vignette describing a scenario in a grocery store and a picture of the worker in the vignette. Depending on the condition to which they are assigned the worker will be described as either rude or friendly and will either be shown as having tattoos or not having tattoos. Participants will then complete questions scaling the perceived warmth, competence, and whether they feel the worker should be promoted. I hypothesize that tattooed employees will be viewed more negatively on scales or warmth and competence and that perceptions of rude employees will be more negative when that employee has tattoos. Potential findings of this study could provide additional evidence of the stigmatization of tattoos as well as informing our understanding of how customer service workers are perceived.

Nintendo vs. Milton Bradley: Handheld Gaming in 1980s America

Zachary Wier
Faculty Mentor: Bridget Chesterton, History and Social Studies Education

This paper delves into the contrasting fates of the Nintendo Game Boy and the Milton Bradley Microvision, two handheld gaming consoles from the early 1970s and late 1980s. While the Game Boy achieved enduring success, becoming a cultural icon, the Microvision faded into obscurity. Through meticulous analysis of primary sources and historical narratives, the research identifies key factors that contributed to these disparate outcomes. Through meticulous examination of primary sources such as the Microvision Instruction Manual by Milton Bradley (1979), the Microvision Technical Report by Microelectronics and Computer Technology Corporation (1980), the Game Boy Owner's Manual by Nintendo (1989), and various issues of the gaming magazine, Nintendo Power from 1989 to 1991, this research dissects the factors contributing to these contrasting outcomes. This study intends to uncover how the Game Boy's strategic marketing, technological superiority, and keen understanding of consumer desires propelled its success, while the Microvision's lack of innovation, marketing missteps, and failure to resonate with consumers led to its demise by centering on firsthand accounts and original documentation. By foregrounding primary sources, this analysis offers a comprehensive understanding of the intricate dynamics that shaped the handheld gaming market of the late 20th century.

From Adoption Papers to Shopping Lines: Decoding the Cabbage Patch Kids Craze of U.S. Shoppers in the 1980s

Jeffrey Wilson
Faculty Mentor: Bridget Chesterton, History and Social Studies Education

This research paper delves into the phenomenon of the Cabbage Patch Kids craze during the mid-1980s, focusing on the marketing strategies that ignited a shopping frenzy in 1983. While previous studies have primarily examined the marketing tactics employed by Coleco Industries, this paper takes a broader perspective, seeking to uncover the underlying forces that fueled the craze and drove American shoppers to extraordinary lengths for a $20 doll. Experts such as Jonathan Alexandratos, a toy historian, states: "At the top, I mean they are at the top of the toy fad phenomenon." That holiday season is the one that began the Black Friday craze that we see every year. By analyzing a variety of sources, including live television broadcasts, books, podcasts, and magazines, this study aims to piece together the multifaceted dynamics that contributed to the craze, exploring not only the manufactured shortage of supply and hyped-up demand but also the human element and strange sense of community that emerges amidst the chaos of consumer fervor. To further this argument, the research melds the psychological aspects contained within the consumer frenzy and the nostalgic feelings or sense of community fostered by the intense conflicts that arise during these collective pursuits.

The Moderation of Entrapment and Hope on the Relationship Between Risk Management and Suicide Ideation

Adrianus V. Wutz
Faculty Mentor: Dwight A. Hennessy, Psychology

Many variables can predict suicide ideation. Risk management is a variable that lacks research regarding suicide ideation, even though risk-taking behavior is a strong predictor of suicide ideation. From this, the current study examined the relationship between risk management and suicide ideation, with entrapment and hopefulness used as moderators. Entrapment was predicted to strengthen the relationship between risk management and suicide ideation, and hopefulness was predicted to have the opposite effect. Participants were primarily recruited from SUNY Buffalo State University, with a small subset from the Buffalo community. Participants were asked to answer a questionnaire assessing their risk management, suicide ideation, entrapment, and hopefulness levels. When a hierarchical multiple regression was conducted, risk management was not found to have a significant association with suicide ideation. However, perceived benefits, a component of risk management, was found to have a weak negative relationship with suicide ideation when entrapment was present. In addition, entrapment displayed a strong positive relationship with frequency of suicide ideation. The main conclusion of the current study is that an individual's level of perceived benefits, as entrapment is present, is related to their frequency of suicide ideation.

Fashion Innovator: Willi Smith

Kuban Yao, Shaniya Barber, Elijah Kennedy, John Payne
Faculty Mentor: Arlesa Shephard, Fashion and Textile Technology

The purpose of our project is to shine light on an unrepresented fashion designer who impacted the 20th century. Even though Black History Month has passed, we still believe we should keep shining the light on Black and brown people who have shifted the fashion industry. Willi Smith was an African American queer fashion designer who was known for being the inventor of streetwear. Unlike any other designer of his time Willi did not only create for celebrities and models, but for everyday people. He once said, "I do not design clothes for the Queen, but the people who wave as she walks by"; he took pride in creating clothes for fierce everyday people. Because of people like Willi Smith, Patrick Kelly, Ann Lowe and others, the fashion industry started to question their standards. His ability to combine streetwear and high fashion with bold choices of color, playful patterns and inclusivity approaches, push the boundaries in the fashion industry, making hip-hop and street culture more mainstream. Willi's influence paved the way for diversity and inclusion in the world of fashion for designers and models. Even after conquering racism, injustice, struggles, setbacks, homosexuality, he still didn't stand a chance against the rise of AIDS/HIV. Willi's life was taken (along with many Black designers) at the early age of 39. While Willi left this world too soon, his creative mind and determination to represent fueled the fashion industry in a short amount of time and will always be the creator of streetwear.

Promoting a Deeper Understanding of Arithmetical Calculations and Critical Thinking Skills in the Lower Elementary Mathematics Education

Selen Yucel
Faculty Mentor: Keli Garas-York, Elementary Education, Literacy, and Educational Leadership

This is an examination of highly engaging activities that promote critical thinking in early elementary mathematics classrooms. My research further investigates how playful activities get students to be engaged in mathematical problem solving. I believe that the use of tools such as measuring tapes allows students to further develop their mathematical understandings in a hands-on fashion and provide a tangible context to transfer concrete concepts into their abstract counterparts.

Melodies of the Romani Soul: Exploring Brahms's *Zigeunerlieder*

Noah Zanghi
Faculty Mentor: Carolyn Guzski, Music

Johannes Brahms (1833-1897) composed the ***Zigeunerlieder***, Op. 103, in 1887, setting to music a collection of Hungarian folk poems translated into German. This ***Liederkreis*** of 11 songs for vocal quartet and piano showcases Brahms's masterful fusion of Romanticism with the folk traditions of Hungary. This project delves into the artistic characteristics of Brahms's late Romantic style and the significance of the Zigeunerlieder within his oeuvre. By

analyzing Brahms's use of modal harmonies, and rhythmic vitality, I aim to uncover the composer's deep admiration for folk music and his unique ability to infuse it with the sophistication of the art song genre. Interdisciplinary perspectives shed light on how Brahms's ***Zigeunerlieder*** reflects and influences its era. Through exploration of the cultural fascination with the exoticism of Romani music in 19th-century Europe, as well as Brahms's personal connections to Hungarian folk music, this research elucidates the societal and artistic currents that shaped the composition. Furthermore, consideration of performance practice provides insight into the challenges and nuances of interpreting the ***Zigeunerlieder***. Performers must carefully balance technical precision with emotional expression to bring Brahms's vibrant compositions to life on stage.

Modern Slavery: Sex Trafficking in Buffalo

Ashley Zapp
Faculty Mentor: Jessica Fitzpatrick, Social Work

What does poverty and human trafficking look like in Buffalo? In 2021 there were 10,359 trafficking situations reported to the National Human Trafficking Hotline. Human trafficking can come in 2 different categories labor and sex trafficking. Human trafficking not only affects adults, but children are particularly vulnerable as well. While many factors contribute to children being more susceptible to being a victim of human trafficking those that have socioeconomic struggles are at a greater risk. While there are many reported instances of human trafficking there are still many more that go unreported that contribute to a growing modern slavery problem. In order to learn more about human trafficking in Buffalo I plan to interview a representative from one of the organizations in Buffalo that aids in helping the victims of human trafficking. I will also research local articles and new stories as well as data to gain a further understanding of the assistance Buffalo has to offer victims as well as gain a better understanding of people's awareness of Buffalo's human trafficking problem. I expect that while we may have some resources at hand that there is still more that we as a community can do to help those who need it. I expect to find that most people in our community are unaware of the prevalence of human trafficking in the Buffalo area. I hope this poster raises more awareness to Human trafficking and how it impacts our community in Buffalo.

Forever Young? Attitudes Toward Aging Among Members of the K-Pop Fandom

Daisy Zhanay
Faculty Mentor: Eyad Naseralla, Psychology

K-Pop fandom spaces are a way to engage with others who share a similar love and passion for the music genre. As older fans grow up and a new wave of younger fans enter, some believe older fans must grow out of their interests because they are labeled as too old to enjoy the genre. This mirrors attitudes toward performers in the K-Pop industry. The purpose of this study is to examine the effects of attitudes among members of the K-Pop fandom. Participants will be recruited through various online community forums such as Reddit. Participants will complete a questionnaire about their identification with K-pop, their knowledge about the K-Pop industry, system justification, and their attitudes towards aging. We hypothesize that those who more strongly identify with K-Pop as genre and those higher in system justification will express more negative attitudes towards aging and more restrictive attitudes about aging in performers and fans. These possible findings would suggest being a member of the K-Pop fandom can affect attitudes towards aging.